

International Energy Biweekly Review

4 October 1978

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INTERNATIONAL ENERGY BIWEEKLY REVIEW

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A wildcat strike in the Iranian petroleum industry has thus far had little impact on oil production or exports. New drilling and normal maintenance, however, have been suspended.	
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INTERNATIONAL ENERGY BIWEEKLY REVIEW

Overview

A series of wildcat strikes over the past several months in Iran has been extended to the important petroleum industry. The 10-day-old walkout of Iranian oil workers now includes some 90 percent of local employees at several major oil production facilities and at the major Kharg Island export terminal.

The fields known to have been struck include Ahwaz, Agha Jari, and Gachsaran, which supply almost one-half of Iran's current production. New drilling and the use of workover rigs have been suspended, as have normal maintenance activities. The lack of maintenance increases the risk of serious accidents. Some delays in tanker loadings at Kharg Island are apparently related to the strike. Export facilities at Kharg Island handle some 4.6 million barrels per day, or more than 90 percent of Iran's crude oil exports.

Workers have presented a long list of salary and fringe benefit demands to the management of the consortium of international oil companies that is responsible for production at the major onshore oilfields. The Iranian Ministry of Labor and the state-owned National Iranian Oil Company—which oversees all petroleum operations—have taken the lead in negotiating for management. They reportedly have taken the line that everything is negotiable, but only after the illegal strike is terminated.

Both the Shah and officials of the national oil company are said to be nervous about the strike, but they have thus far been unwilling to take any strong actions. A vague threat by the government brought few workers back to work.

For the near future, consortium management and staff personnel should be able to keep production and exports going at a near-normal pace, but if the strike drags on, the Shah may have to resort to force to get the strikers back to work.

The costs to Iran of an interruption of the flow of oil could be enormous; revenue from oil sales makes up about 97 percent of Iran's export earnings. The strike is inopportune for Iran. After weak sales in the first half of the year demand for Iranian crude has recently picked up, boosted by Saudi Arabian restrictions on the portion of light crude that Aramco can lift. (Secret NoforN-Nocontract)

Note: Comments and queries regarding this publication are welcome. They may be directed to [REDACTED] of the Office of Economic Research, telephone [REDACTED]

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IRAN: PETROLEUM PRODUCTION SYSTEM

The Iranian petroleum industry is dominated by the National Iranian Oil Company (NIOC), a wholly state-owned concern established in the wake of the nationalization of the domestic oil industry in 1951. Either directly or through the employment of service contractors, NIOC exercises a nearly absolute monopoly over all facets of the oil industry.

NIOC is the owner of Iran's oil reserves and all fixed oil installations. Its direct responsibilities include (1) providing direction and supervision over all operations of the Oil Service Company of Iran (OSCO), a NIOC contractor—owned by the former consortium of 14 European and US oil companies—charged with operating the principal producing area (the Khuzestan Oilfields); (2) production from the Naft-e-Shah oil reservoir, which has a capacity of about 20,000 b/d; (3) international marketing of a growing percentage (currently about 25 percent) of crude from the Khuzestan Fields; (4) international marketing of one-half of the oil produced by four offshore joint ventures in the Persian Gulf; (5) domestic marketing of virtually all petroleum products; (6) operation of six domestic refineries with a total refining capacity of more than 900,000 b/d; (7) an extensive crude and product pipeline network totaling more than 5,500 kilometers; (8) provision of nonbasic services (housing, medical care, etc.) in the Khuzestan Fields; and (9) an active exploration and development program in areas reserved by NIOC for itself.

The relationship between NIOC and OSCO is legally governed by the 1973 Sales and Purchase Agreement. Changing world market conditions since the agreement have made many of its provisions mutually unacceptable, and both parties now operate under informal terms. A new agreement is under negotiation.

In the past five years NIOC has played an increasingly active role in oil development and production planning while the Consortium, which once controlled the industry, has been relegated to the status of a service contractor. The 1973 Agreement gave NIOC control over OSCO operations in the Khuzestan Oilfields, an area somewhat smaller than the former Consortium concession area. The oil from these fields is used to meet domestic Iranian requirements; the remainder is available for export by NIOC and Consortium members.

In addition to its role as an exporter and marketer of Iranian crude, the former Consortium also remains a critical source of expertise in production. OSCO, formed by the Consortium as part of the 1973 Agreement, retains basic responsibility for (1) exploration, development, and production of crude oil and natural gas in the Khuzestan Fields; (2) natural gas liquids (NGL) processing operations; and (3) transportation to and loading at the several crude oil and product export terminals.

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Iran's Khuzestan Oilfields		
Oilfield	API Gravity	Production Capacity (Thousand b/d)
Total		5,803
Agha Jari	34	650
Ahwaz-Bangestan	25	92
Ahwaz-Asmari	32	1,265
Bibi Hakimeh	30	330
Binak	30	60
Chillingar	39	10
Chasmeh Khush	33	20
Dehluran	33	NA
Gachsaran	31	1,100
Haft Kel	38	8
Karanj	34	265
Kharg	33	30
Kupal	32	50
Lab-e Safid	36	30
Lali	NA	NA
Mansuri	29	15
Marun	33	1,310
MIS	41	10
Naft Safid	34	25
Paris	34	200
Par-e Siah	NA	4
Pazanam	35	70
Rag-e Safid	29	235
Ramin	NA	4
Ramshir	28	20

NIOC presently has 3,189 employees and OSCO has 10,098. In NIOC, 71 percent of the personnel are locally employed Iranians paid a daily rate (the skilled and unskilled labor force), 27 percent are Iranian staff employees, and the remaining 2 percent are foreign staff members. OSCO has 59 percent daily rated local employees, 35 percent Iranian staff personnel, and 6 percent foreign staff members.

The local employees paid a daily rate are participating in the current strike. The bulk of these employees are in building construction, maintenance, security, and medical care and other services, but others are employed in field, transportation, and terminal operations.

The key link in the crude oil export chain is Kharg Island, a 35-square-kilometer island in the Persian Gulf 44 kilometers from the mainland. The terminal there is fed by an onshore pumping station through six subsea pipelines with a combined capacity of 8 million b/d. Facilities on the island have a storage capacity of 25 million barrels.

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Oil Service Company of Iran: Personnel Strength

	Staff Employees		Daily Rated Employees	Persons
	Iranian	Foreign		
Total	3,558	582	5,958	10,098
General management				
General manager and staff	1	2	0	3
Internal audit	17	5	0	22
Medical and petroleum engineering advisers	2	1	0	3
Management services	3	0	0	3
Contracts	42	19	0	61
Technical affairs				
General manager and staff	1	1	0	2
Exploration	69	43	53	165
Petroleum engineering	180	56	105	341
Planning	7	8	0	15
Information and computing services	148	26	5	179
Operations				
General manager and staff	1	1	0	2
Fields operations	431	22	835	1,288
Gas and gas liquids	111	61	107	279
Drilling	58	108	4	170
Services	295	31	1,283	1,609
Maintenance	348	21	895	1,264
Materials planning	0	1	0	1
Administration				
General manager and staff	2	0	0	2
Finance	223	12	123	358
Personnel	198	23	8	229
Organization and productivity	12	1	0	13
External relations and security	23	0	199	222
Legal and services—Tehran	27	0	42	69
Pension adviser	1	0	0	1
Civil defense	1	0	0	1
Engineering and Construction				
General manager and staff	0	1	0	1
Engineering and construction—Tehran	39	23	89	151
Engineering and construction—Ahwaz	133	40	0	173
Engineering and construction—project materials	20	8	0	28
Engineering and construction planning and cost	1	11	0	12
Engineering and construction services	74	46	0	120
Other				
Special duties	19	11	0	30
Personnel on development	952	0	2,148	3,100
Supernumerary	30	0	58	88
Medical disposal cases	0	0	4	4
Contracted staff	89	0	0	89

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NIOC: Personnel Strength

	Staff Employees			Persons
	Iranian	Foreign	Daily Rated Employees	Total
Total	862	71	2,25	3,189
General management	10	0	0	10
Office and commercial services	25	0	73	98
Liaison and property protection	30	0	187	217
Medical and health	355	71	275	701
Engineering, construction, and maintenance	129	0	1,048	1,177
Finance	33	0	0	33
Personnel	81	0	12	93
Social services and commissary	60	0	578	638
Personnel on development	131	0	65	196
Supernumerary	8	0	18	26

A four-berth loading island is capable of handling 500,000-ton tankers at the two outer berths and 300,000-ton tankers at the two inside berths. A 10-berth T-pier can load tankers up to 275,000 tons. The port's overall rated loading capacity is 12 million b/d; the most ever loaded in one day was 9.7 million barrels in August 1977.

Kharg Island facilities are heavily automated, and staff personnel have been able to continue operations during the strike, although some delays have been reported. Among the critical services performed by local employees is operation of the tugboats needed to berth the oil tankers. OSCO reportedly has hired a third tugboat to add to two already under contract, and is operating one of its own tugs with staff personnel. (Secret Noform-Nocontract)

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CHINA: PUSHING OFFSHORE OIL NEGOTIATIONS

Peking is asking US and Japanese oil companies to speed up their contract proposals for exploration and development of Chinese offshore oil. The companies, although eager to break into the Chinese oil business, are unwilling to commit themselves to investments that may run up to billions of dollars until they finish financial and technical studies. They have only limited geological information as a basis for deciding how much investment to risk in the areas China is offering for development. The companies must also formulate their proposals with unusual finesse to avoid the appearance of exploiting the Chinese. The Hua Kuo-feng-Teng Hsiao-

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p'ing leadership, by removing Communist China's traditional ban on foreign participation in its energy industries, is vulnerable to charges of "selling out" national resources. Consequently, the signing of a formal contract with a foreign oil company appears at least several months away.

Chinese Goals

China wants to increase offshore oil production rapidly. The implied 13-percent average annual rate of growth of crude output called for by the 1976-85 plan will severely tax the capabilities of onshore fields; the ambitious crude output rates envisaged through the end of the century will certainly exceed onshore capabilities. The Chinese have nearly depleted the shallow reserves at their largest onshore field, Ta-ch'ing. They have also come up against severe technological barriers to increased production from deeper and more complex geological formations at Ta-ch'ing and other fields. These problems will require some time to overcome, even with foreign equipment. New onshore fields with relatively accessible reserves are being developed, but there is no assurance that they will be able to provide the additional output needed to meet Peking's goals.

Internal politics is also a factor in the haste of the Chinese leadership. Teng Hsiao-p'ing, according to Vice Premier Wang Chen, had to overcome opposition from a "considerable number" of senior officials in order to open Chinese resources to foreign development. Teng reportedly prevailed only after linking foreign participation to national security. He reportedly argued that if China is to avoid a Soviet invasion, the Chinese must become stronger militarily. In his view, such strength requires modernization of the economy; this in turn, will depend on foreign help—participation, equipment, and technology—that must be paid for by oil and, to a lesser extent, gas and coal. Teng's view apparently is running into resistance; one minister is already said to have been dismissed and more dismissals may be coming. Teng and his followers will now come under pressure to show results.

Negotiations

Peking is negotiating offshore development with US firms—Pennzoil, Exxon, Union Oil, Phillips Petroleum, and Mobil—and the Japan National Oil Company, a government entity. The Chinese also claim contacts have been made with British, French, and Italian companies.

The Chinese are prodding the Japanese to join them in their ongoing development of the Gulf of Pohai immediately, and to negotiate payment terms later. Peking is pointing to competition from US and European firms; it is also probably exaggerating the oil potential of the Gulf. The Chinese say they hope for an output

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from Pohai of 400,000-600,000 b/d by 1985. Present output is probably no more than a few thousand b/d.

The Japanese reportedly are not being swayed by the Chinese ploys. Although a delegation is scheduled to visit Peking this month to discuss a Chinese proposal that the Japanese invest \$10 billion in survey ships, drilling platforms and rigs for 200 wells, communications-computer centers, offshore LNG facilities, and pipelines, the Japanese do not believe that Pohai reserves warrant such an expenditure. Moreover, Japanese refining companies have openly stated that they will not be ready to receive large quantities of Pohai oil—which they expect to be poor in product yield and high in wax content—for another eight to 10 years.

Chinese pressure on US oil firms has been less heavy-handed. Nevertheless, Vice Premier K'ang Shih-en has publicly expressed disappointment over the "small appetite" of the US companies, who reportedly have shown interest in only a small offshore area. Although the Japanese and some US firms generally are willing to work almost anywhere on the continental shelf, they prefer the southern China coast where they believe they would have a better chance of finding the more desirable lighter crude oils.

Prolonged negotiations will be required before contracts satisfactory to both sides can be devised. Peking is inquiring, at every opportunity, about the terms of contracts that the companies have signed with other countries, including the USSR. The Chinese not only want to make certain that they do not overpay, but they probably also want to camouflage any product sharing arrangement in ideologically acceptable terms.

If and when the oil companies begin work on the offshore fields, the pace is likely to become an issue with the Chinese. Already, Peking has been unpleasantly surprised by the statements of one US oilman that large-scale production of offshore oil may take much longer than the 10 years or so the Chinese had assumed. (Secret Noform-Nocontract)

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VIETNAM: OIL EXPLORATION MAY START SOON

Vietnam is moving ahead with its offshore oil exploration plans. So far this year, Hanoi has signed contracts with Italian, West German, and Canadian companies to work in areas explored by US companies before the collapse of the Saigon government in April 1975. Although supply problems and international boundary disputes remain to be ironed out, drilling is scheduled to resume in early 1979. The Vietnamese also are

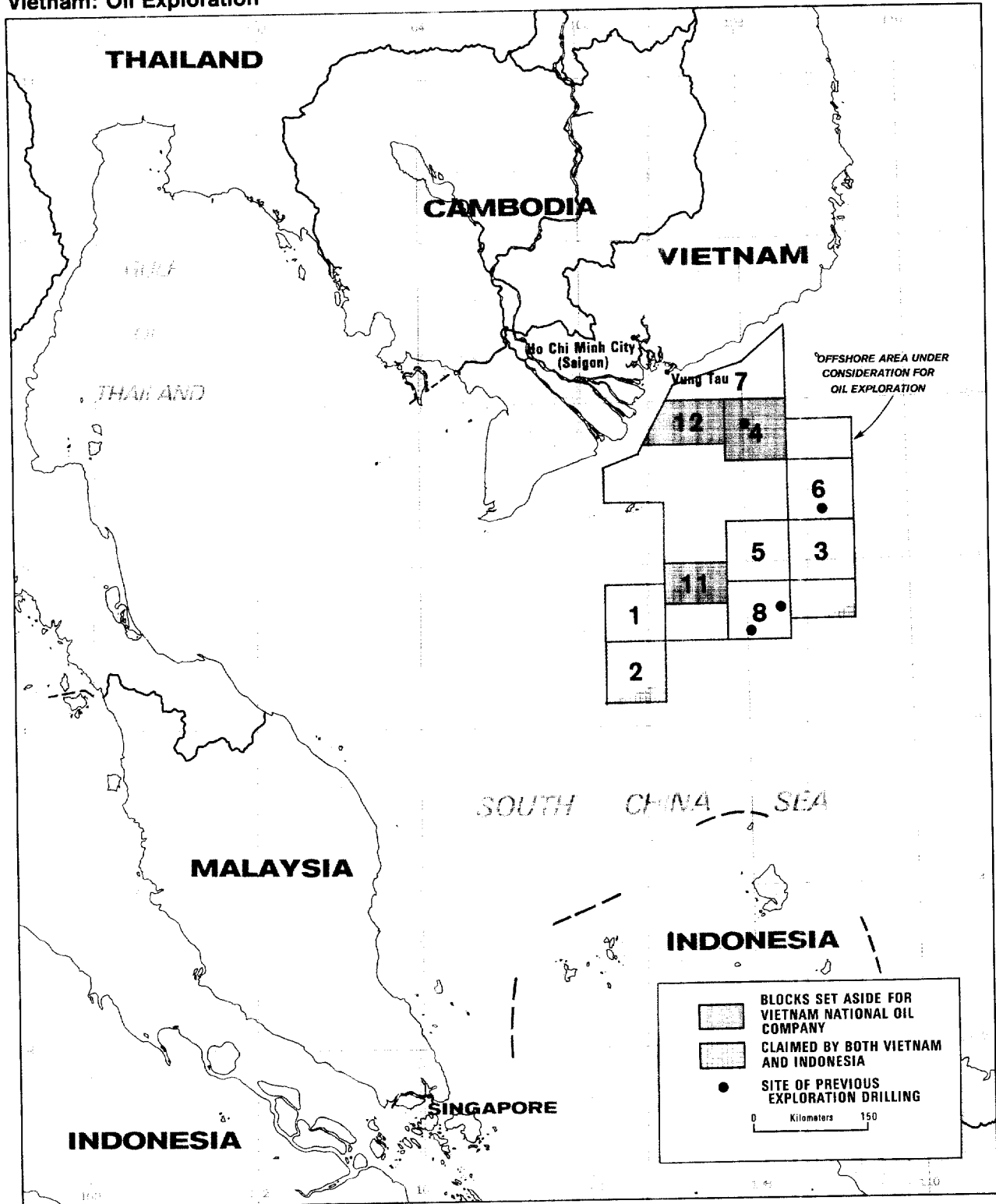
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Vietnam: Oil Exploration



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still holding out hope that US companies can return to Vietnamese waters if Washington drops its proscription against US participation.

Negotiations

Petrovietnam, the state oil company, has signed service contracts so far this year for oil exploration and development with ENI-Agip (Italy), Deminex (West Germany), and Bow Valley (Canada). These contracts are the culmination of negotiations that began in 1975. The slow pace largely reflected Hanoi's reluctance to allow Western oil companies to operate in Vietnam and its inexperience in international economic negotiations. Frequent irrational Vietnamese demands were a further major obstacle in the negotiations.

Negotiations also were slowed by hopes that Washington would allow US companies to resume business in Vietnam,* perhaps as part of an aid program. US companies completed four exploratory wells in South Vietnamese offshore waters in late 1974 and early 1975; two wells indicated the possible presence of hydrocarbons in

Vietnam: Offshore Blocks Contracted or Under Consideration

Block Number	New Operator	Former Operator	Contract Signed
1, 2	Bow Valley (Canada)	Sunningdale (Canada) ¹	Sep 78
7	Deminex (West Germany)	Shell/Cities Service (US)	Apr 78
6, 8	ENI/Agip (Italy)	Shell/Cities Service (US)	Apr 78
5	Elf/Aquitaine (France)	Exxon (US)	none
3	Elf/Aquitaine (France)	Mobil (US) and Kaiyo (Japan)	none
12, 4	Petrovietnam (Vietnam)	Mobil (US) and Kaiyo (Japan)	National Reserve ²
11	Petrovietnam (Vietnam)	Marathon (US)	National Reserve

¹ Bow Valley is a successor company to Canadian-owned Sunningdale.

² The Norwegian Fred Olsen Group is currently negotiating for a drilling program in National Reserve block 4.

commercial quantities. Hanoi repudiated all contracts with these companies after they pulled out during Saigon's last days in April 1975. Still, the Vietnamese clearly prefer advanced US technology, and they probably believe that US experience in the area would translate into faster results than could be obtained from non-US firms.

Petrovietnam is still negotiating with firms from France, Japan, and Norway. The French Company, Elf-Aquitaine, has apparently joined with Kaiyo, a Japanese firm, to drill in a block where Kaiyo previously held joint rights with Mobil. Another

* On 13 September 1978, the US Government reaffirmed the "Trading With the Enemy Act" that bars US firms from any financial dealings with the Vietnamese.

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Japanese firm, a subsidiary of Mitsubishi, is also attempting to negotiate a drilling contract.

Negotiations with the Norwegian-owned Fred Olsen Group concern exploration in blocks set aside as a state petroleum reserve. Petrovietnam apparently intends to participate more actively in the drilling in the state reserves than in other blocks and to control a greater share of the output in return for providing a bigger share of the capital input. If agreement is reached soon, drilling could begin by February. The Norwegian Government earlier granted Hanoi a \$50 million aid package for seismic work, construction of a support base and communications facilities, and an exploratory drilling program.

Potential Delays

The push to begin exploration early in 1979 may run into some problems. Most important, drilling rigs are in short supply in Southeast Asia. A pickup in offshore exploration in Indonesia, Malaysia, and the Philippines has reduced the number of idle rigs in the area to four in September from 16 a year earlier. Moreover, if any of the idle rigs are owned by US companies, they cannot legally be used in Vietnam; a US rig would have to be sold to a foreign company and reregistered.

The firms holding contracts with Hanoi also will have difficulty in finding non-US companies to provide other specialized equipment and to perform services such as well logging and cementing. It probably would be possible to circumvent US laws against dealing with Vietnam on some equipment by "laundering" transactions through foreign companies. Adequate, non-American service expertise will be harder to obtain.

Moreover, Vietnam has made no progress settling disputed offshore boundary claims with Indonesia. Talks between Hanoi and Jakarta since late 1977 have floundered on Vietnamese demands that the boundary be reconstructed—based on the deepest point between the two countries rather than along points equidistant from their shores. The novel Vietnamese terms would require Indonesia to give up a large amount of its offshore area between the two countries. The problem with Indonesia could delay part of the Canadian and Italian drilling programs, both of which involve areas near the disputed Vietnam-Indonesia offshore boundary.

Finally, the initiation of drilling operations by several foreign companies in late 1978–early 1979 will strain Hanoi's logistic and administrative capabilities. Deminex has been constructing a supply base at Vung Tau. Other firms' local arrangements are not known but some may choose to work out of Singapore if Hanoi permits.

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Onshore Exploration

Two decades of onshore drilling activity have produced little evidence of commercial oil or gas. Although Hanoi, with Soviet assistance, has been exploring for hydrocarbons in the northern part of Vietnam since the early 1960s, large-scale deep drilling did not begin until 1977 when the USSR stepped up its rig deliveries. Hanoi has reported oil and gas strikes in the Red River delta southeast of the capital, but it has not made any claims of commercial discoveries; nor are there any indications that significant amounts of gas or oil are being produced.

Domestic Consumption

Vietnam will have to rely on fuel imports well into the 1980s, even if exploration gets under way soon and commercial discoveries are made. It currently imports approximately 35,000 to 40,000 b/d of refined products from the USSR, Iraq, Algeria, and Singapore, with most imports financed by Soviet foreign aid.

Vietnamese planners estimate that current fuel needs are on the order of 40,000 to 50,000 b/d. Oil is used for almost all electrical generation in the southern half of the country and it supplements coal in the north. Earlier plans for conversion of oil-fired units to coal have not been implemented because of a lack of equipment, difficulties in transporting coal internally, and, probably, government hopes that domestic oil will replace oil imports.

Fuel shortages are limiting the government's programs for agricultural and fishing development, rural electrification, and improved transport. Consumers have also suffered directly from shortages of kerosene for cooking and lighting. (Unclassified)

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THAILAND: COUNTING ON NATURAL GAS

A two-year impasse between foreign oil companies and the Thai Government was recently resolved, paving the way for a \$1 billion offshore gas development project. Bangkok is counting on the gas to reduce its massive oil import bill and to encourage badly needed foreign investment in nonoil sectors of the economy.

Gas Discoveries

Offshore drilling began in both the Gulf of Thailand and the Andaman Sea in 1971 after several years of unsuccessful onshore exploration. Drilling in the Gulf has

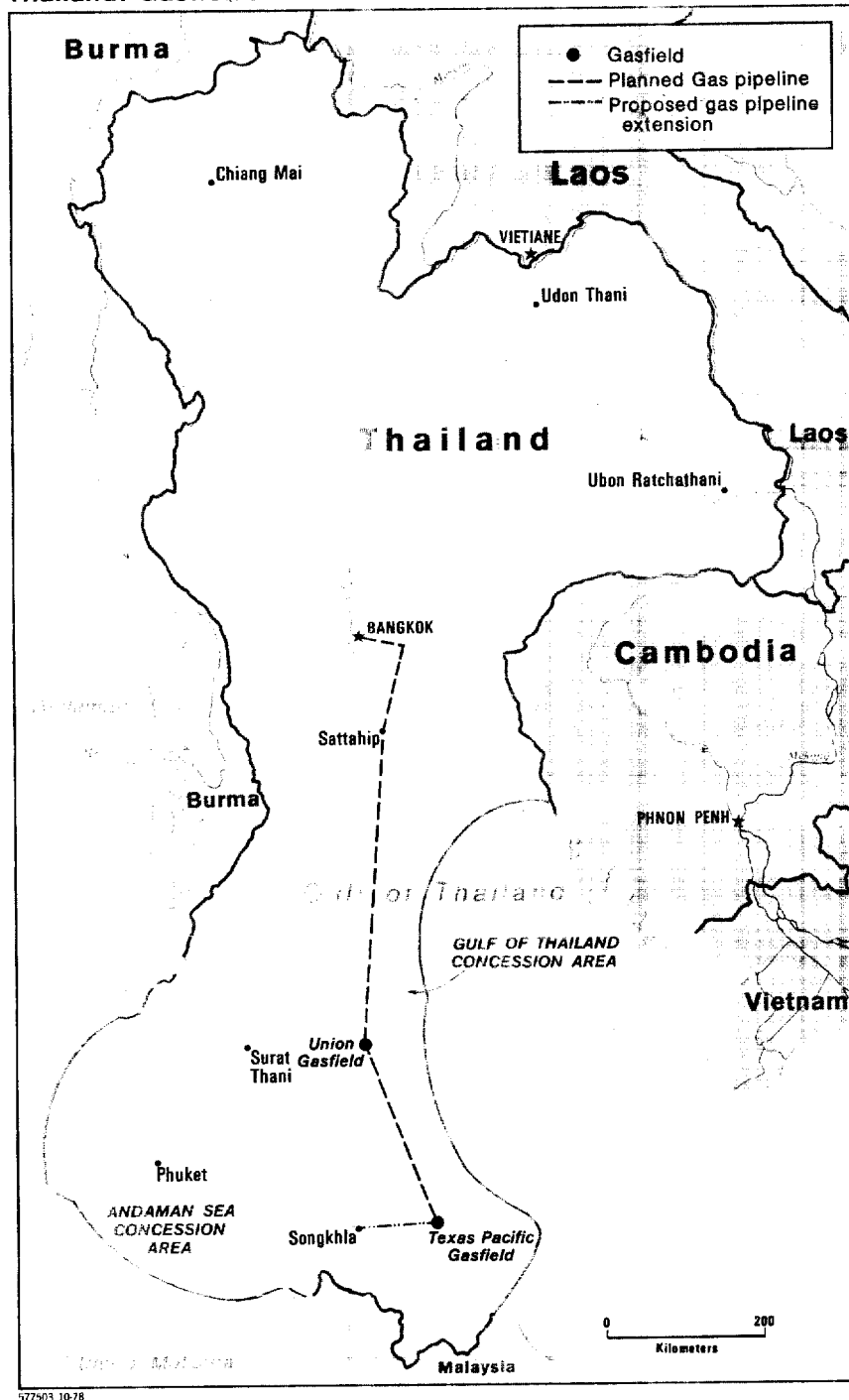
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Thailand: Gasfields



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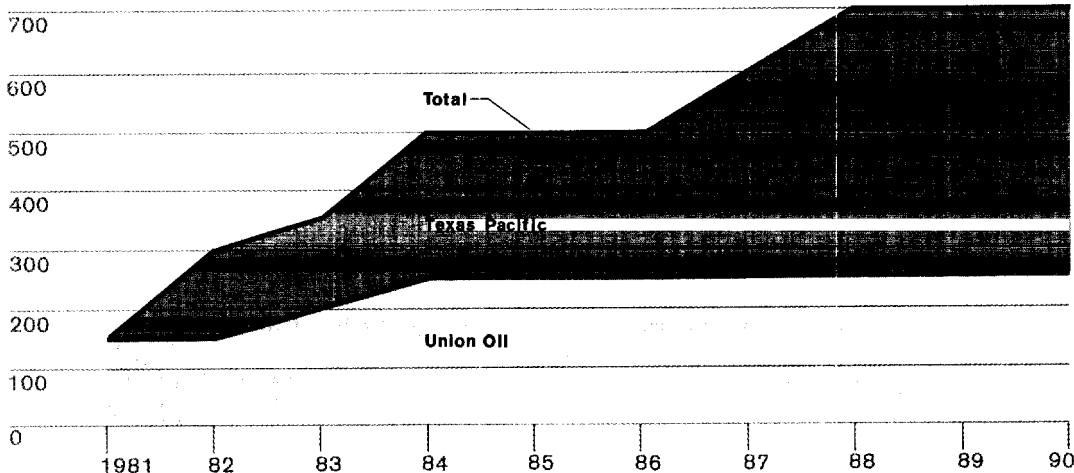
been more extensive than off the west coast, with the first commercial discovery in June 1973. Of 40 Gulf wells drilled to date, 12 have resulted in commercial gas/condensate discoveries. As far as oil is concerned, however, the oil companies have been very disappointed with the Gulf as a producing area; there have been only three finds, all noncommercial.

The Gulf's geology indicates a substantial gas-bearing potential but, thus far, poor prospects for oil accumulations. Extensive seismic surveys reveal Tertiary sediments measuring up to 4 kilometers thick. These will be the primary drilling sites as exploration moves ahead. The several successful offshore wells have been drilled in structures to depths of 1,200 to 3,660 meters in waters 45 to 75 meters deep.

Two US-owned companies—Union Oil and Texas Pacific Oil—are spearheading exploration in the Gulf. Proved reserves in the Union and Texas Pacific gas fields combined are estimated at about 5 trillion cubic feet, and the companies expect this figure to increase as exploratory drilling proceeds. Union's field, some 560 kilometers south of Bangkok, is the smaller of the two with proved reserves of about 1.5 trillion cubic feet. Proved reserves in the Texas Pacific field, 175 kilometers southwest of the Union field, are estimated at 3.4 trillion cubic feet. According to the companies, however, the Union field eventually may turn out to be the larger of the two discoveries with proved and probable reserves of as much as 7.5 trillion cubic feet.

Thailand: Projected Gas Production Profile

(Million cubic feet)



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Results in the Andaman Sea so far have been disappointing, and several companies have voluntarily relinquished their concessions in shallow coastal waters. Drilling in deep waters has shown promise of oil and gas but the companies believe more seismic work is necessary to evaluate the area's potential before continuing exploration.

Price

Under a June 1978 agreement between Union Oil and Bangkok, worked out after protracted haggling over prices, all gas produced will be sold to the national entity—the Natural Gas Organization of Thailand (NGOT). Initially, NGOT will pay an average price of \$1.04 per thousand cubic feet, less about 38 cents for royalties and taxes. The net price to NGOT will amount to only about \$4 per barrel of crude oil equivalent. The price will be linked to an index incorporating Thailand's wholesale price index, an export commodity index, and an index of fuel oil prices at Singapore. The price will automatically be reduced, however, as gas production climbs above a projected initial output of 150 million cubic feet per day (about 26,000 b/d oil equivalent).

The price agreement worked out with Union presumably will form the basis for an agreement with Texas Pacific. Negotiations between the latter firm and the Thai Government are expected to resume within the next few months; an agreement may be reached by yearend.

Development Plans

The gas development project, as currently envisioned, will be divided into two parts. The companies will build the production facilities; NGOT will construct an undersea pipeline from the fields to Bangkok and build an onshore gas treatment plant. Treatment is particularly critical because Gulf gas has an unusually high carbon dioxide content ranging from 8 percent to 13 percent, which, if not removed, would corrode gas distribution pipelines. The gas treatment plant will also strip the valuable condensate for use as a petrochemical feedstock and as automotive and household cooking fuels.

NGOT hopes to start construction of the pipeline before the end of 1978 and begin gas production early in 1981 at a level of 150 million cubic feet per day. By 1985, production is scheduled to reach 500 million cubic feet per day (about 86,000 b/d oil equivalent).

NGOT estimates the cost of both a 30-inch pipeline with a capacity of 500 million cubic feet per day and the gas treatment plant at roughly \$500 million. Union estimates the required investment for development at its field at about \$250 million.

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Gas and the Economy

Until gas was discovered, Thailand had few indigenous energy resources. Petroleum exploration had uncovered only a few small oilfields in northern Thailand that currently meet less than 1 percent of domestic oil consumption. Prospects for further development of hydroelectric potential are limited; with completion of projects now under construction and those in the planning stage in the next few years, the potential of Thailand's domestic rivers will be nearly fully exploited. Hydropower currently meets only about 10 percent of domestic energy needs.

The country's poor energy base has led to reliance on imported energy for about 80 percent of its needs. Oil imports last year accounted for almost 25 percent of the total \$4.7 billion import bill.

Since the 1973/74 OPEC oil price hike, successive Thai governments have had some success in limiting the growth of oil imports, largely by ordering government-owned thermal powerplants to switch to alternative fuels—mainly domestic lignite. The 1977 oil import volume—about 188,000 b/d—was only about 12 percent above the 1973 level.

The scope for further substitution of domestic energy resources for imported oil is limited, however, particularly in the transport and agricultural sectors which together account for about one-half of domestic oil consumption. Without the recent gas discoveries, domestic oil consumption probably would have resumed its pre-1973/74 average annual growth rate of 7 to 8 percent over the next few years. At this rate, consumption would have reached about 230,000 b/d in the early 1980s and 325,000 b/d by 1985.

We expect the advent of domestic gas production to allow the government to substitute about 50,000 to 60,000 b/d oil equivalent of gas in the early 1980s and perhaps as much as 80,000 to 85,000 b/d in 1985. At today's oil prices import savings would amount to an estimated \$240 million to \$285 million in 1982-83 and nearly \$400 million by 1985. Thai reliance on imported energy would be cut by 5 to 10 percent—to about 70 to 75 percent—in the early 1980s and could decrease considerably thereafter.

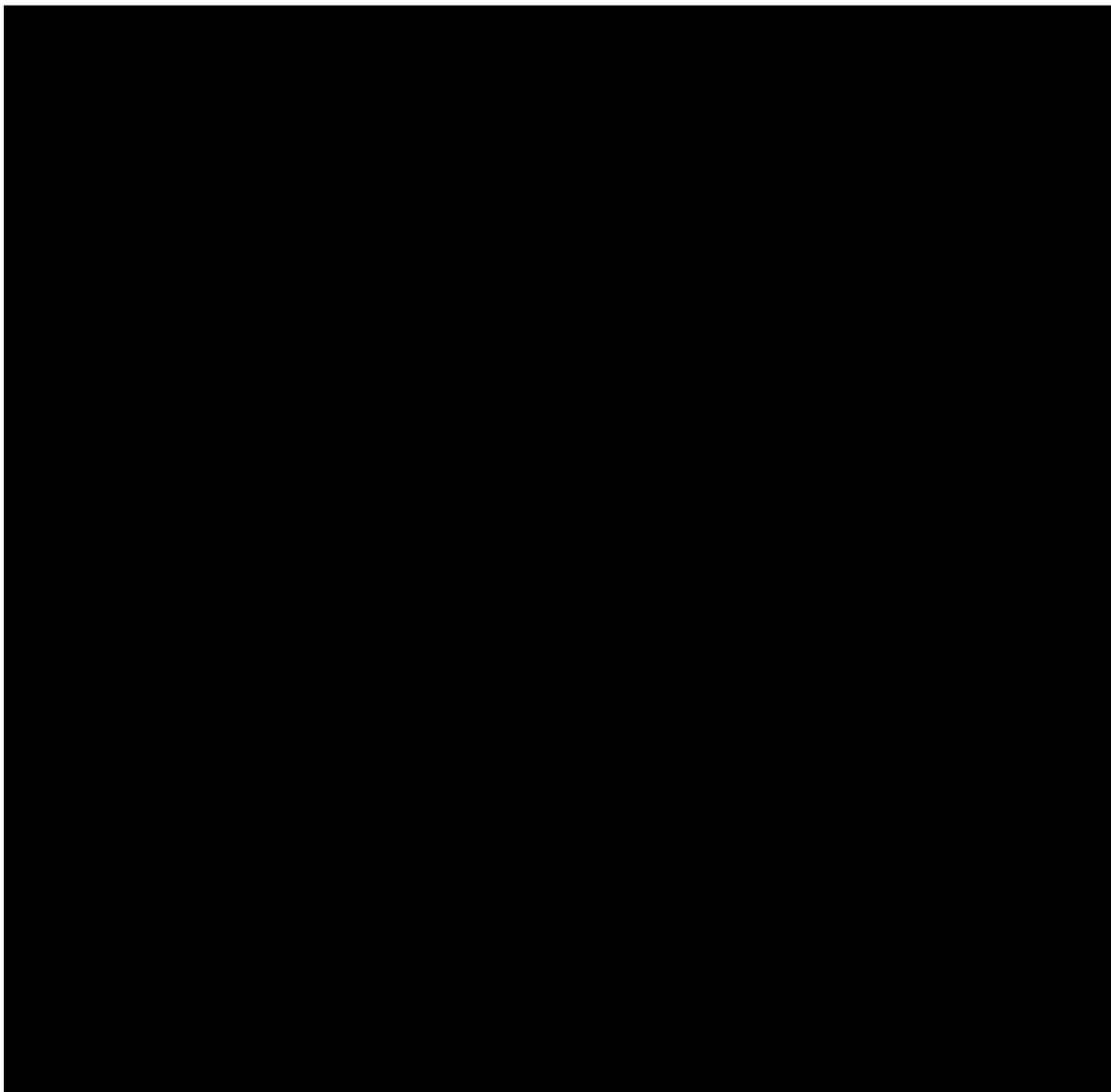
Much of the initial gas output will be absorbed by electric power plants in the Bangkok area, but the government expects to gradually make gas available for industrial development as offshore output rises. Should the gas reserve base at the Texas Pacific field increase in the next few years as anticipated, Bangkok is considering building a pipeline to Songkhla, near the Malaysian border. The government is eyeing southern Thailand, a long neglected area, as a new focal point for

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manufacturing. The Kriangsak government, which assumed power in October 1977, is also hoping to see an upsurge in gas-related foreign investment. Foreign inflows have been down in recent years because of an unsettled political situation, which included several coups, and a government dispute with foreign oil firms over gas prices. (Confidential)

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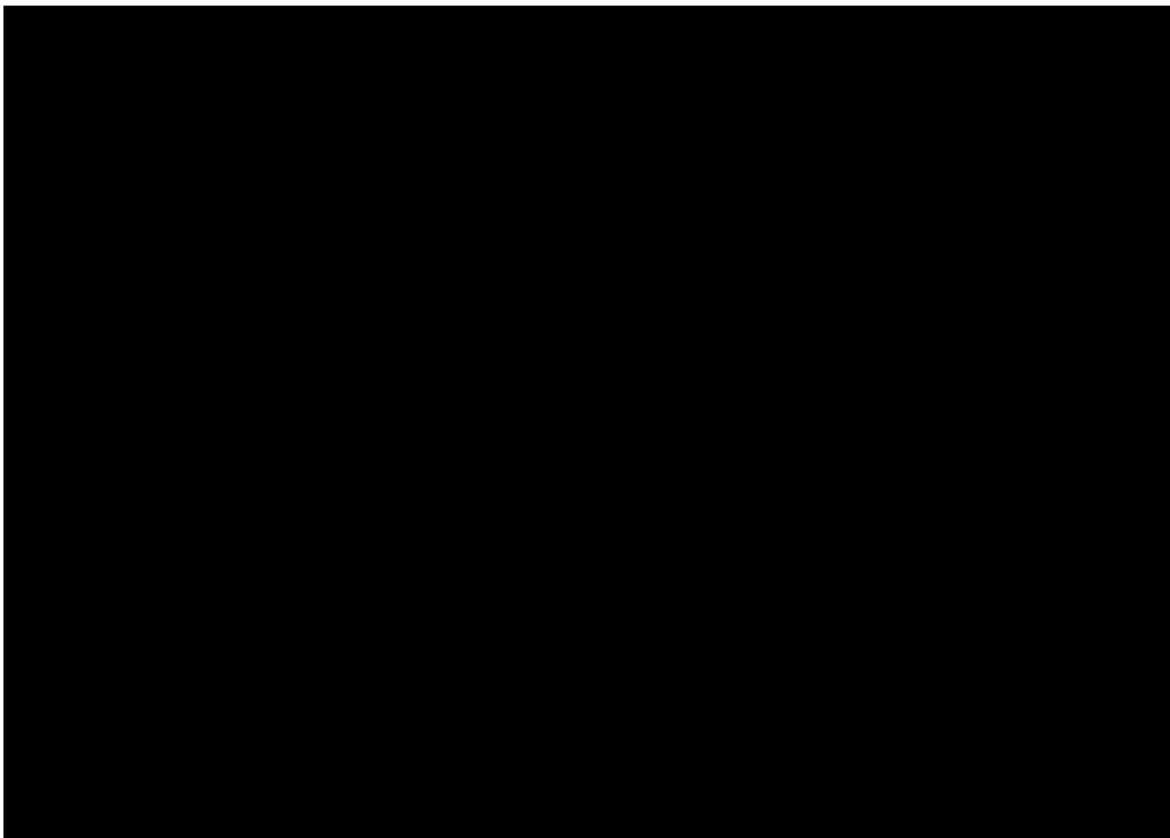
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SPAIN: CONTROVERSIAL ENERGY PLAN UNVEILED

The Spanish National Energy Plan for 1978-87 will spark heated debate when parliament begins deliberations this month, primarily because it features higher energy prices and expansion of nuclear power. Preoccupied with other political and economic problems, the government is just now attempting to implement an energy policy. Under the plan, energy prices will be boosted to approximate the average West European level. Completion of the nuclear energy program, which is already well along, would give Spain one of the highest shares of electricity generated by nuclear energy among OECD countries. Expanded use of coal, natural gas, and domestically produced oil also is to contribute to reduced dependence on oil imports despite a substantial projected increase in energy consumption. The plan envisions annual public and private investment in exploration and new power plants of about \$2 billion through 1981, 7 percent of projected total fixed capital investment.

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Energy Squeeze

Except for progress in the nuclear power sector, Spain has lagged in adapting to the 1973/74 quadrupling of oil prices. While Western Europe as a whole was showing improvement in energy efficiency between 1973 and 1976, Spain was becoming less energy efficient. Spanish energy consumption increased by 14 percent in this period while GNP rose by 8 percent. In Western Europe as a whole, GNP increased by 5.5 percent but energy consumption declined by 1 percent.

The political uncertainty that has prevailed since before Franco's death has militated against energy policy initiatives:

- Energy prices have been raised only slowly, and remain well below the West European average. Regular gasoline and diesel fuel prices in Spain currently are 15 percent and 30 percent below average respectively.
- No general energy conservation plan has been enacted.
- Domestic production of primary energy has fallen since 1973.

Spain's domestic energy resources are small or of poor quality. Coal deposits are low quality, with high sulfur and ash content. Hydroelectric potential is limited because rainfall is scant and undependable. Spain's first natural gas discovery, which occurred earlier this year off the southwest coast, will require several more test wells to determine whether the find is commercially exploitable. Oil production is small, although exploration has revealed greater potential and is continuing. On the other hand, Spain's uranium deposits are sizable and could supply 40 percent of the large requirement for nuclear raw material by 1982.

More than two-thirds of Spain's energy needs are imported. Crude oil, primarily from Saudi Arabia and Iran, accounts for about 90 percent of imports; its rising cost was the largest single factor in the deterioration of Spain's current account in 1974-77. Coal and coke are imported from Poland and the United States and natural gas from Libya and France. Spain spent \$5 billion on energy imports in 1977, 28 percent of total imports and more than double the share in 1973. Energy exports, mostly refined petroleum products, equaled less than 8 percent of energy imports.

New Plan

The energy plan, which has been delayed in the legislature while the new constitution is being debated, emphasizes the need to moderate energy demand and

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Spain: Energy Production, Imports, and Consumption ¹

	1977			1987 Plan		
	Production	Net Imports	Consumption	Production	Net Imports	Consumption
Total	402	940	1,342	899	1,064	1,963
Oil	19	868	887	145	921	1,066
Coal	168	49	217	279	39	318
Natural gas	0	23	23	0	104	104
Hydroelectric ²	188	0	188	184	0	184
Nuclear	27	0	27	291	0	291

¹ Source: Spanish National Energy Plan.

² Hydroelectric production was unusually high in 1977 because of heavy rainfall; production in 1976, an average hydroelectric year, was 100,000 b/d oil equivalent.

adapt it to the availability of domestic resources. It relies heavily on pricing and other conservation policies.

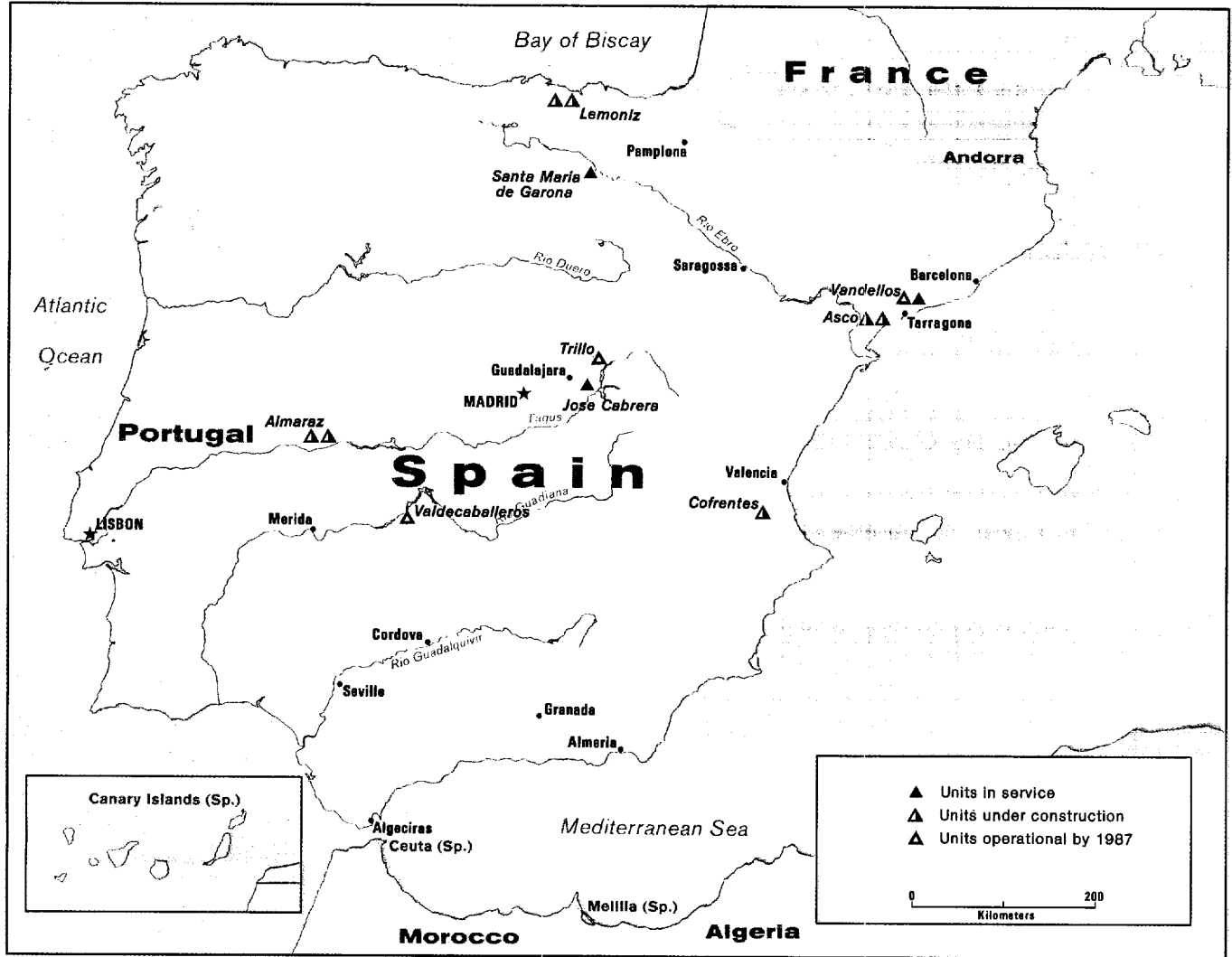
Under the new plan, energy prices will be increased gradually. In general the objective will be to cover costs and insure that energy prices do not fall in relation to other prices. Spanish planners feel that real energy prices should increase by 2 to 3 percent per year until they approximate the average West European level. Tax hikes will play a key role in petroleum product pricing. Government subsidies on manufactured gas will be abolished. The regressive electricity rate structure will be modified to reduce the gap between higher household rates and relatively cheap industrial rates; surcharges and discounts for consumption during peak and low-usage periods will be increased.

The plan also calls for a number of other measures designed to increase energy conservation:

- Taxes on large industrial users of energy.
- Financial and other assistance for energy-saving investment.
- Greater use of railroads for freight transport, presumably to be achieved through tax and price incentives.
- Fuel consumption standards for vehicles.
- Insulation standards for new construction and financial incentives for increasing the insulation of existing buildings.

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Spain: Nuclear Power Reactors



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- Reduced lighting for streets and advertisements.
- A temperature ceiling of 68° F (20° C) for heating public buildings.

Under the plan, the Spanish project energy consumption to increase at an average annual rate of 3.9 percent over the decade—from 1.3 million b/d of oil equivalent in

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1977 to 2.0 million b/d in 1987. This projection puts the rate of energy consumption growth at about the same rate as GNP growth—projected at 4 percent per year in 1979-87, following a 1-percent growth in 1978. The plan assumes that new policies will cut 1987 consumption by about 10 percent from what it would have been otherwise. In 1969-76, on the other hand, average annual energy consumption grew one-third faster than GNP.

The plan also seeks to reduce Spanish vulnerability to denial of foreign supplies by establishing energy stockpiles and exploiting national energy resources more fully. Domestic energy production is planned to increase by 8.4 percent annually, and the share of energy imports in Spanish energy consumption is to be reduced to 54 percent by 1987.

Nuclear Program

A key element in Spain's energy strategy is its nuclear power program. By 1987, nuclear power is to meet 15 percent of total energy needs and 38 percent of electric power requirements, compared with 2 percent and 7 percent, respectively, at present. If these goals are met, nuclear power will play a greater role in Spain than in any West European nation other than France.

The plan calls for 13 nuclear reactors to be onstream by 1987, bringing total nuclear generating capacity to 10,660 megawatts. Nuclear electric power generation

Spain: Nuclear Power Reactors

	Capacity (Gross MWE)	Reactor Type ¹	Reactor Supplier	Commercial Operation
Operating				
Jose Cabrera	160	PWR	Westinghouse	1968
Santa Maria de Garona	460	BWR	General Electric	1971
Vandellos-1	498	GCR	Groupement Construc- teurs Francais	1972
Under construction				
Almaraz-1	930	PWR	Westinghouse	1979
Almaraz-2	930	PWR	Westinghouse	1980
Lemoniz-1	930	PWR	Westinghouse	1980
Lemoniz-2	930	PWR	Westinghouse	1982
Asco-1	930	PWR	Westinghouse	1981
Asco-2	930	PWR	Westinghouse	1982
Confrentes	975	BWR	General Electric	1983
To be authorized				
Trillo-1	1,032	PWR	Kraftwerk Union	
Vandellos-2	980	PWR	Westinghouse	
Valdecaballeros-1	975	BWR	General Electric	

¹ PWR = pressurized water reactor. BWR = boiling water reactor. GCR = gas-cooled reactor.

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in 1987 is projected at 61 billion kWh. Spain now has three reactors in operation and seven under construction. Ambitious though the plan is, it represents a scaling back of nuclear expectations. Earlier plans for a total of 19 operational reactors by 1987 have been cut back as electricity demand projections have been reduced and antinuclear sentiment has intensified.

Spanish officials have presented a strong economic case for the nuclear power program. According to Madrid's calculations, electricity from nuclear plants would be about 20 percent cheaper than that generated by coal- or oil-fired plants, and this differential would increase if the real price of energy rose.

The Spanish calculations tend to exaggerate the cost advantages of nuclear plants. The Spanish study presumably does not include the cost of long-term storage of nuclear wastes or the eventual dismantling of hot reactors. The Spanish also assume a higher operating rate for new reactors than experience suggests will be the case.

To complement its reactor program, Spain expects to expand its nuclear processing capabilities. Although it processes some uranium ore, most fuel and fuel services now are purchased from the United States and the Soviet Union. In 1980, however, a Spanish fuel fabrication plant will begin operation, supplying all fuel element requirements by 1982. Madrid is also a member of the uranium enrichment consortium EURODIF* and expects EURODIF to satisfy 40 percent of Spanish enrichment needs by the end of the plan period. Citing the uncertainty involved in contracting for reprocessing and waste disposal services abroad, the plan also calls for Spain to have a reprocessing facility in service sometime after 1994. Meanwhile, Spain will expand spent fuel storage pools at individual power plants and construct a central pool for either interim storage prior to reprocessing or preparation for final storage.

Nonnuclear Plans

Madrid is shooting for domestic oil to satisfy 14 percent of Spanish oil requirements in 1987, compared to 2 percent of a smaller total in 1977. Most of Spain's current output of 19,000 b/d is from the Amposta Marino field offshore in the Mediterranean near the mouth of the Ebro River. Hopes for increased production are tied to wells near Amposta, the Dorada field near Tarragona, and to areas now being explored in the Bay of Biscay. Output of overseas concessions of state-owned Hispanoil—primarily in Dubai—totals about 80,000 b/d and is not expected to increase markedly during this plan period.

Priority attention in natural gas development will be given to exploration, an undersea pipeline from Algeria, and completion of a national pipeline network to

* France, Italy, Belgium, and Iran are also members. EURODIF will begin production in 1980.

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serve principal industrial areas. The plan does not foresee any domestic production of natural gas on a commercial scale by 1987, however, and gas imports will increase from 2 percent of Spanish energy requirements in 1977 to 5 percent in 1987.

As for other energy sources, Spain will emphasize strip mining to increase output from known coal deposits. Planners see little opportunity for expanding hydroelectric output. Nor do they expect research into renewable energy sources to pay off during the plan period.

Outlook

Parliamentary consideration of Spain's 10-year energy plan is expected to take several months. In the end, the ruling Union of the Democratic Center can count on support from the rightist Popular Alliance to win a majority endorsement of most of the plan's main features. The strength of the Socialists—the major opposition party—and Communists, however, should suffice to win some concessions from the government. These could include a further paring or stretching out of the nuclear program.

Spanish power companies are unlikely to encounter problems financing nuclear construction. They already have most of the funds lined up for the three reactors on which construction has not yet begun, with most of the capital raised abroad.

Parliamentary agreement on higher energy prices—the major instrument for slowing growth of energy consumption—will be the hardest aspect of the program to achieve, given opposition by the public and the business community. Plagued by galloping inflation in the past few years, the government itself is hesitant to push too hard on prices for fear of triggering a new round of wage increases. Thus, prices are unlikely to rise as much as the plan calls for and the Spanish planners probably are overoptimistic in their projections for improvement in efficiency of energy use. Still, absolute growth in energy consumption probably will be held down because real GNP is likely to grow more slowly than projected. (Confidential)

USSR: LARGE NEW GAS DEPOSIT

The USSR has discovered a large sour gas deposit near Astrakhan on the Caspian Sea and is seeking Western help to develop it. Astrakhan gas could eventually be piped to the gas-poor Caucasus region nearby, freeing for export gas from other more distant gasfields now supplying that region. The potential for increased export earnings and decreased internal transportation costs under such a supply scheme is substantial.

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USSR: Large New Gas Deposit



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The new field may contain more than 35 trillion cubic feet of ultimately recoverable gas reserves; Moscow claims it will be the largest producing field in the USSR by 1990. The giant Medvezh'ye field in West Siberia is the current Soviet leader, producing 2.3 trillion to 2.5 trillion cubic feet annually.

The USSR will not be able to produce the Astrakhan field in the near future, however, unless it buys high-quality Western equipment and technology. The newly discovered gas is located in high-pressure reservoirs—more than 10,000 psi—and is apparently among the “dirtiest” in the world. It is only about one-half methane; the remainder is about equally divided between hydrogen sulfide and carbon dioxide.

Moscow should have no great difficulty obtaining the necessary technology, but development will be expensive. The Soviets are soliciting bids from US, European, and Japanese firms for a \$100 million turnkey desulfurization plant for Astrakhan with an annual capacity of 250 million cubic feet of gas. The plant will yield nearly 6,000 tons a day of sulfur as a byproduct. The USSR also needs an additional \$50 million to \$100 million in Western equipment for the associated drill pipe, casing, tubing, completion units, field processing facilities, and gathering lines necessary to drill and produce 60 to 70 wells in the initial stage of Astrakhan development. Current plans call for 500 development wells by 1983-84. Moscow is shopping for long-term credits and the possibility of a compensation agreement—payment in product—to finance these purchases. (Confidential-[REDACTED])

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CHINA: ALTERNATIVE ENERGY SOURCES

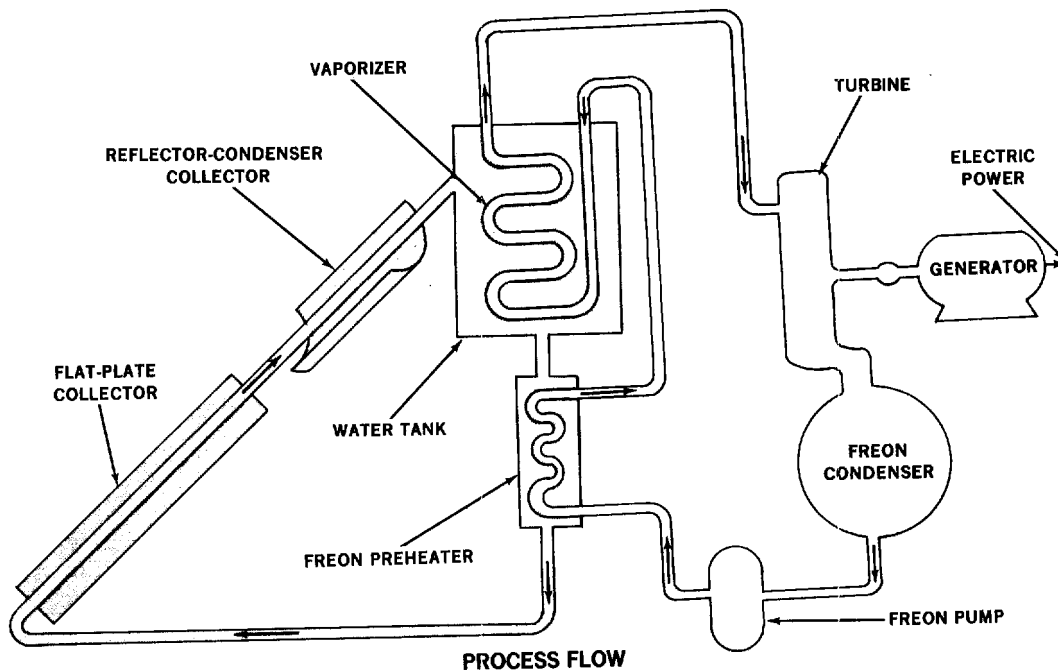
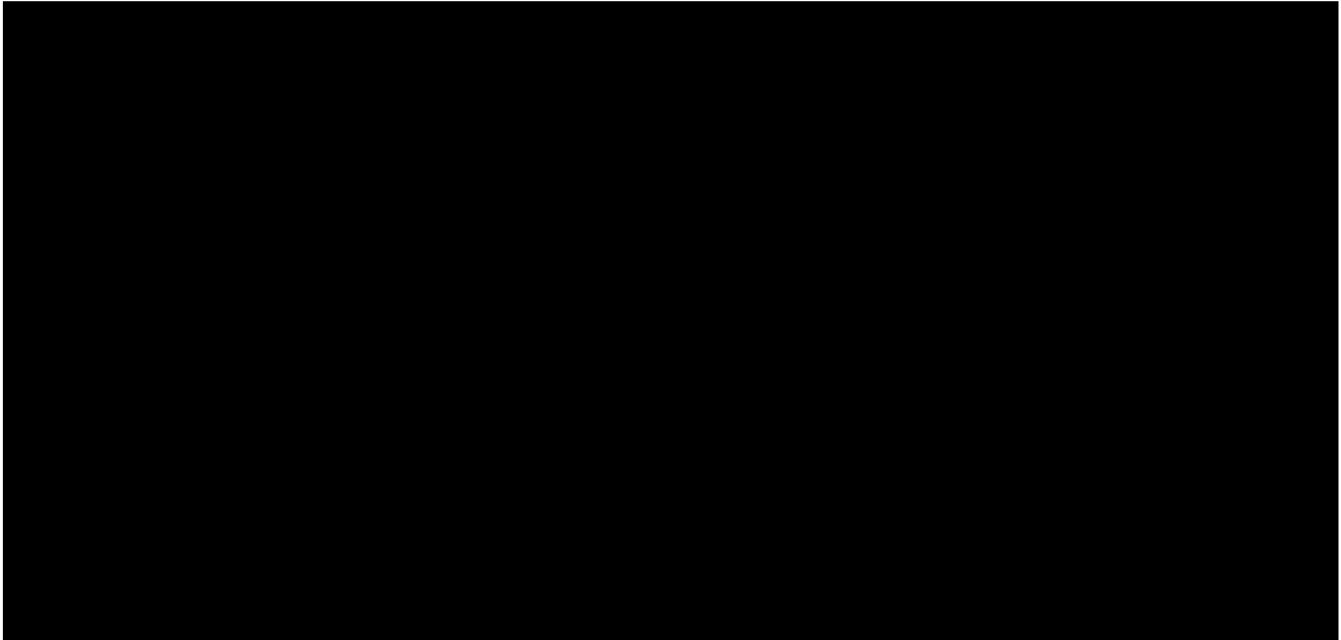
China is in the early stages of a long-range program to develop new energy sources. The Chinese are operating an experimental solar power plant in Shanghai and recently commissioned a small experimental geothermal power station in Tibet. The national energy plan for 1978-85 calls for increased emphasis on alternative sources, with special attention to be devoted to solar energy research.

The Shanghai solar plant probably is being used exclusively for energy research and development, with a view to large-scale applications such as the supply of electric power. It is designed as a two-stage heat collection system in which water, preheated by flatplate solar collectors, is then heated by reflector-condenser collectors. These collectors rotate to maximize the use of sunlight. The heated water is used to vaporize Freon, which in turn drives a turbine connected to an electric generator.

Over the past two decades, the Chinese have surveyed their natural solar potential. They have also carried out research on a variety of small-scale applications, especially solar heating and cooling.

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EXPERIMENTAL SOLAR POWER PLANT, SHANGHAI, 8 OCTOBER 1977.

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The Tibet geothermal plant uses high-temperature ground water to drive the turbines. Chinese scientists have located about 100 other potential geothermal sites along the Chinghai-Tibet plateau in Western China.

In other developments, China has introduced fluidized bed combustion of coal—a technique permitting the use of low-grade coal—in small industrial boilers in at least two provinces. Peking also has ambitious plans for greatly expanding biogas generation—using animal and human wastes—in rural areas, where it already is becoming an important source of energy. (Secret Noform)

* * * * *

SWEDEN: DELAY OF NUCLEAR REACTORS

Swedish Prime Minister Falldin averted a breakup of Sweden's three-party coalition government by announcing on Friday that the loading of two nuclear reactors, postponed since February, would be delayed again. Negotiations among the three parties on this issue stretched a week beyond their self-imposed deadline of 21 September, but Falldin's announcement should prevent a possible parliamentary crisis when the Riksdag opens tomorrow.

The issue of whether Sweden should fully implement its nuclear power program has repeatedly threatened to bring down the coalition since its formation two years ago. Falldin's Center Party promised to dismantle the nuclear power industry during its successful election campaign in 1976. The other coalition partners support nuclear power production so long as the power companies take strong safety precautions.

The government's temporizing increases the possibility that nuclear power will be an issue in the parliamentary elections scheduled for next September. The opposition Social Democrats initiated Sweden's nuclear power program when they led the government in 1975. They, however, have not fully exploited the issue, in part because the party is divided on the question.

According to Falldin, the government will not permit the reactors to be loaded until the power companies implement further safety measures at rock cavern sites designated to receive nuclear waste for permanent storage. The government will authorize the companies to operate the reactors when they demonstrate they have achieved specified levels of safety—the most stringent in the world, according to Falldin.

The government moved closer to accepting additional plants by approving a reprocessing contract between the Swedish power companies and a company in France and by agreeing to store nuclear waste at a central facility. Falldin had delayed approving these measures. (Confidential)



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National
Foreign
Assessment
Center

International Energy Statistical Review

4 October 1978

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STATISTICAL REVIEW

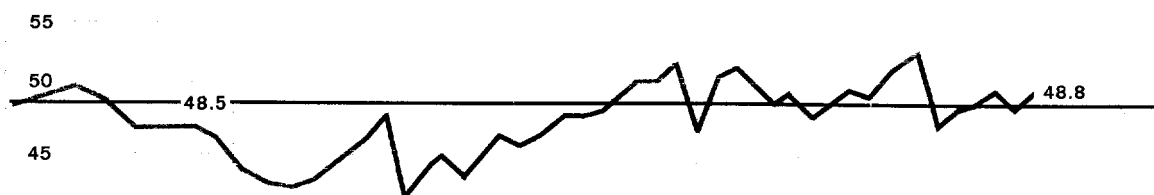
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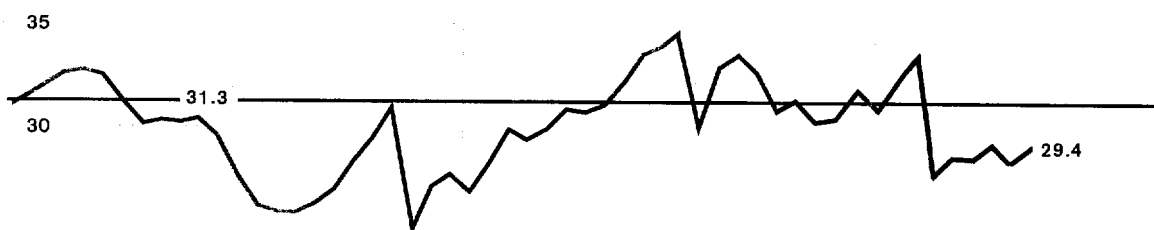
FREE WORLD OIL PRODUCTION¹ MILLION B/D

Semilogarithmic Scale

TOTAL



OPEC



OAPEC

Including Bahrain, Egypt, and Syria which are not members of OPEC.



Non-OPEC



Non-Arab OPEC



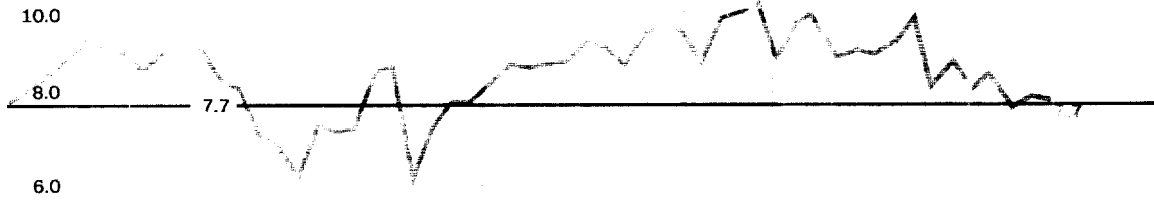
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1974 1975 1976 1977 1978

¹Data include natural gas liquids.

OAPC OIL PRODUCTION - MILLION BBL

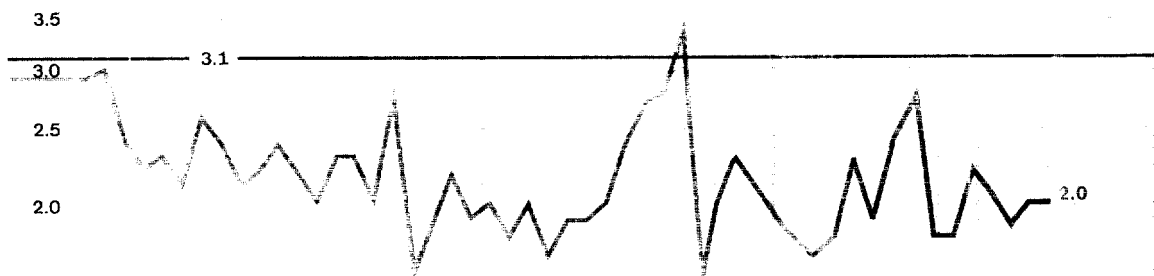
Semilogarithmic Scale

Including about one-half of Neutral Zone production.

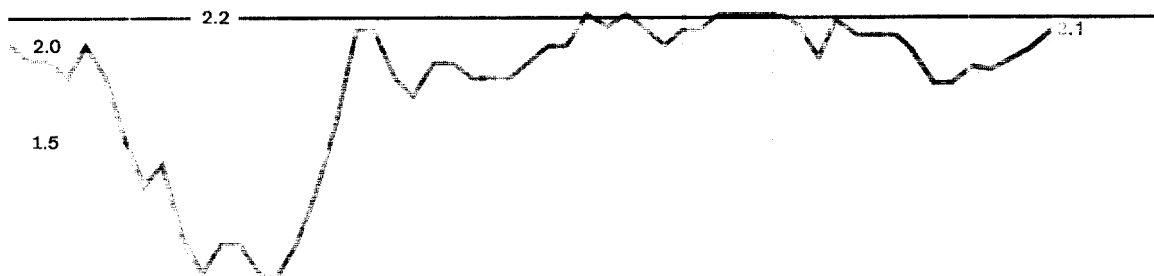


Kuwait

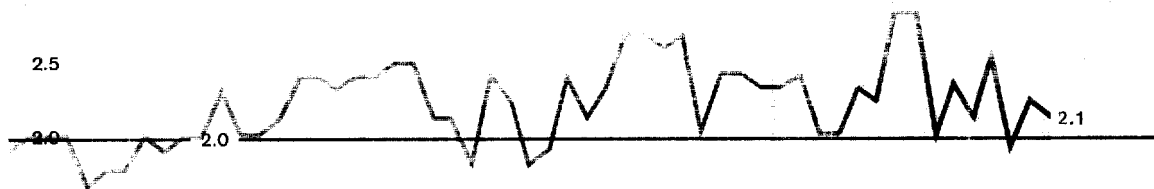
Including about one-half of Neutral Zone production.



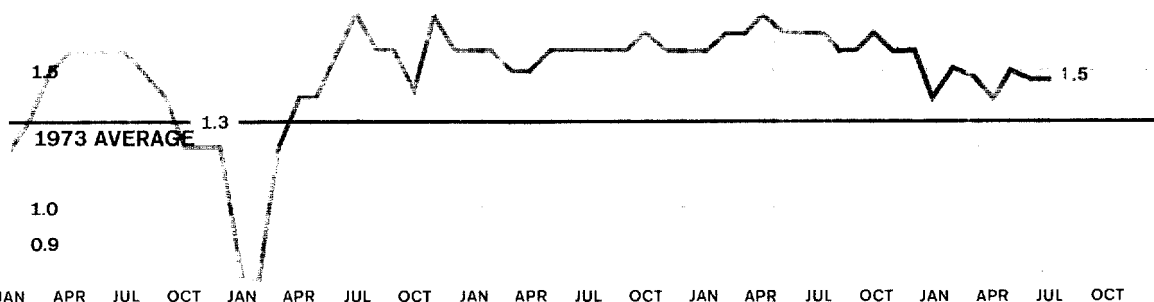
Libya



Iraq

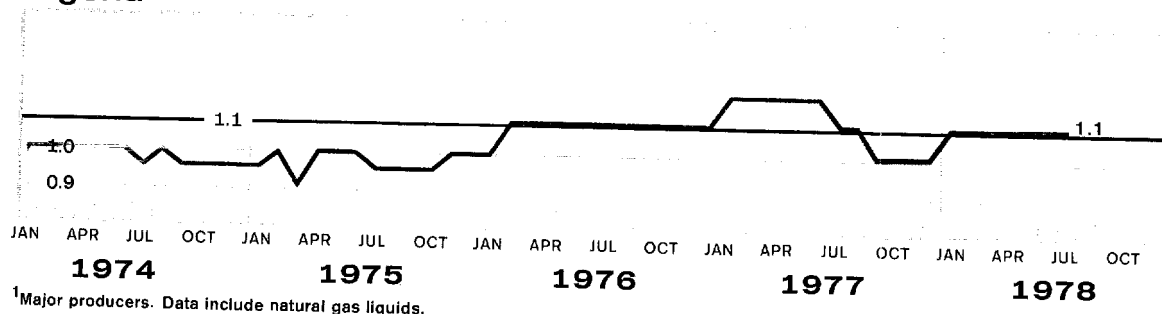


Abu Dhabi



JAN APR JUL OCT 1974 JAN APR JUL OCT 1975 JAN APR JUL OCT 1976 JAN APR JUL OCT 1977 JAN APR JUL OCT 1978

Algeria



NON-ARAB OPEC OIL PRODUCTION¹ MILLION B/D

Iran

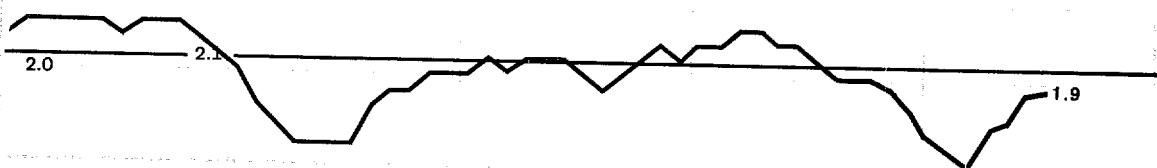
Semilogarithmic Scale



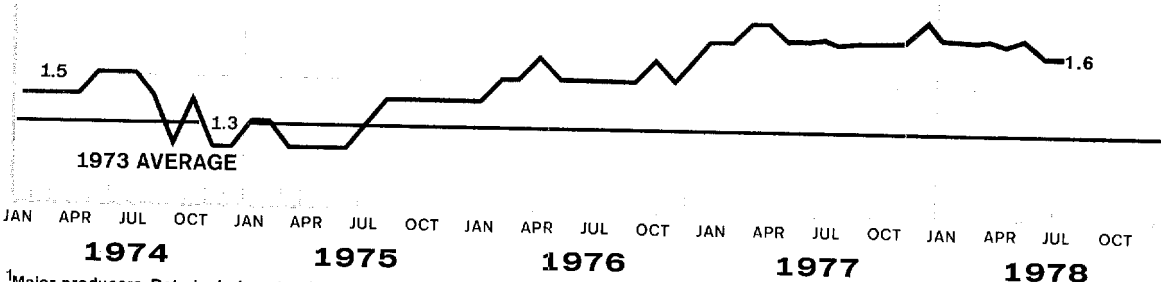
Venezuela



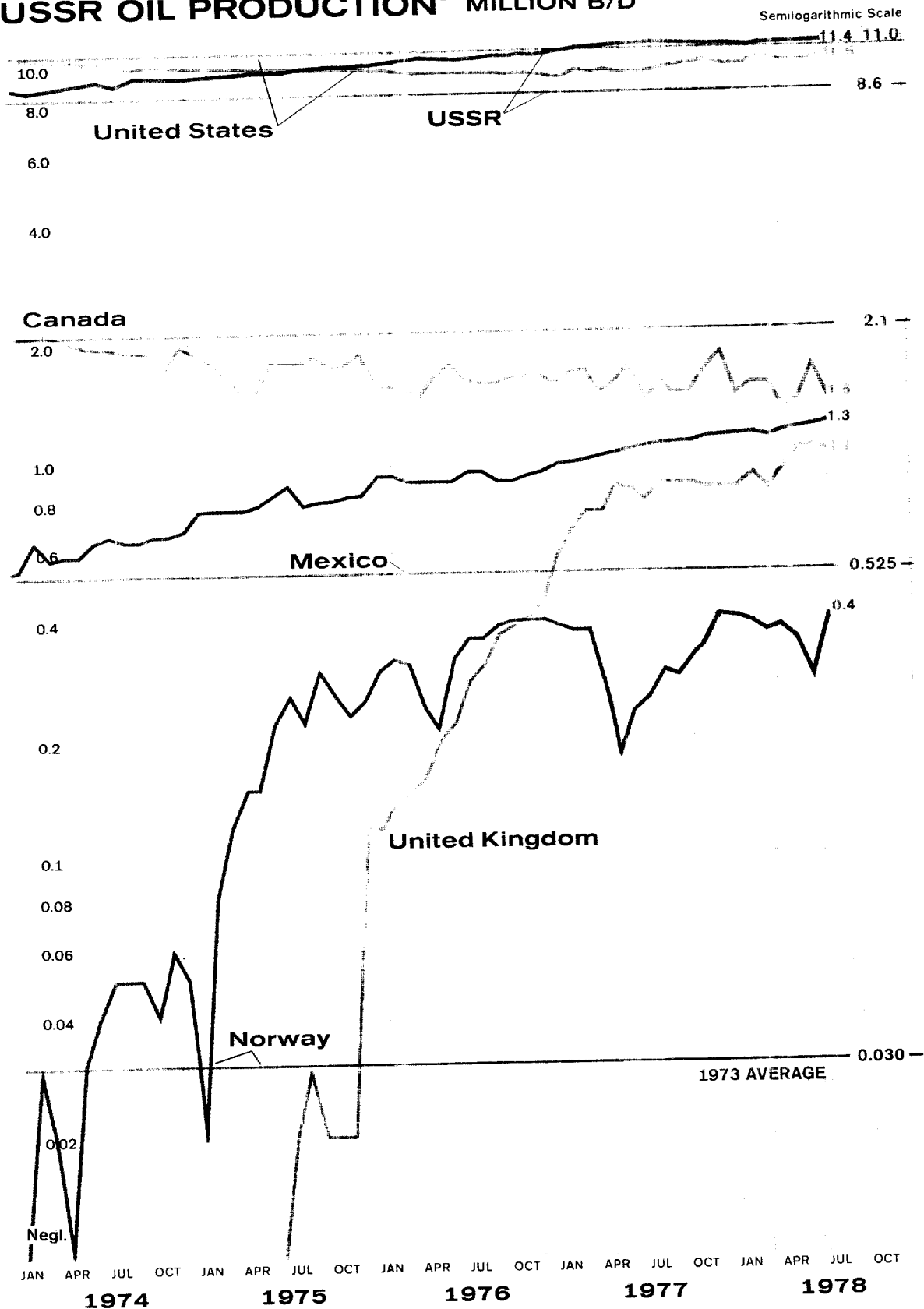
Nigeria



Indonesia

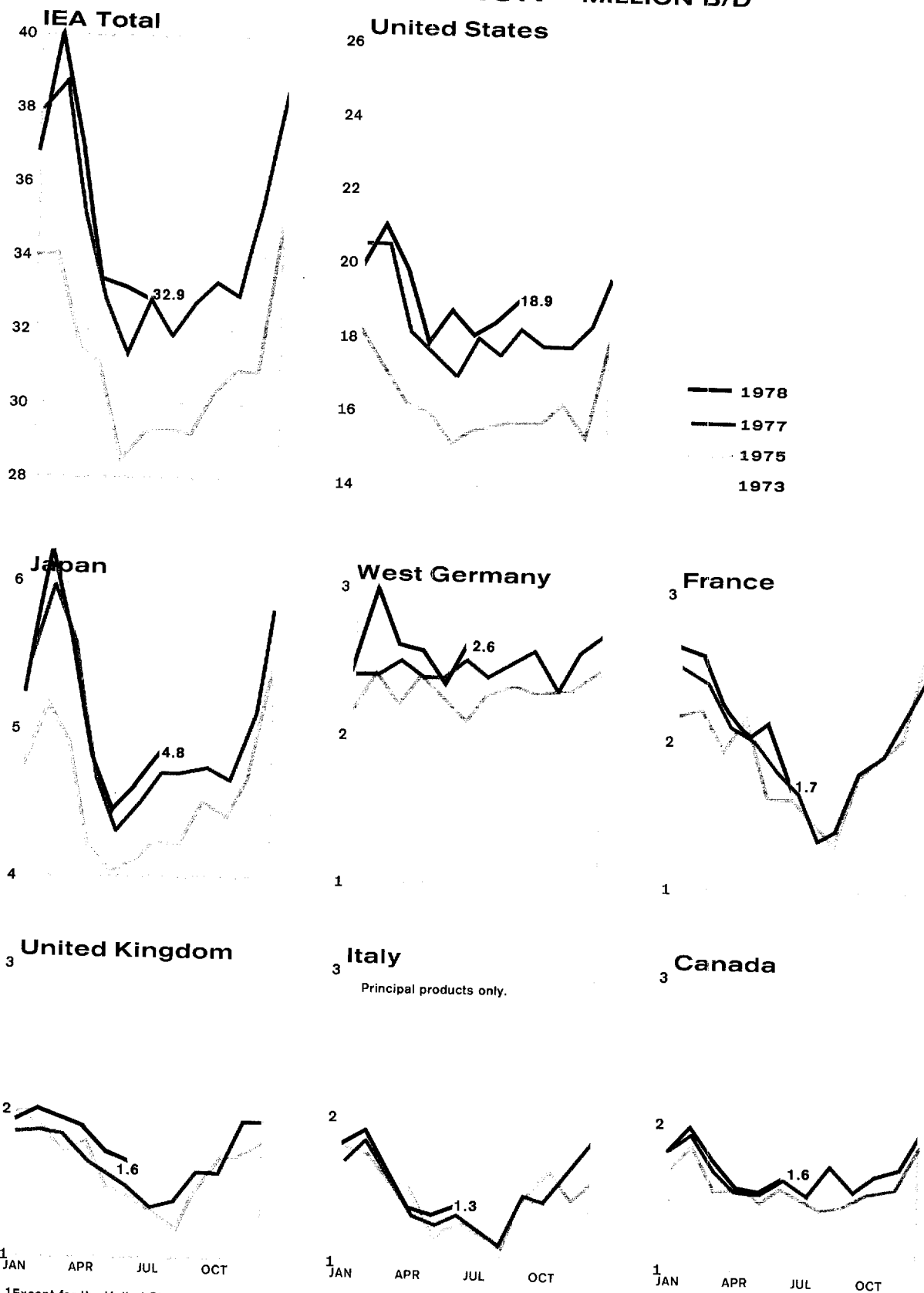


FREE WORLD AND USSR OIL PRODUCTION¹ MILLION B/D



¹Data include natural gas liquids.

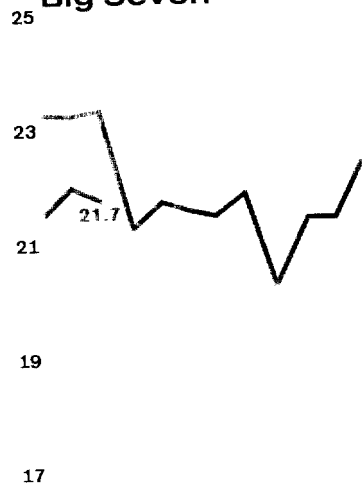
INLAND OIL CONSUMPTION¹ MILLION B/D



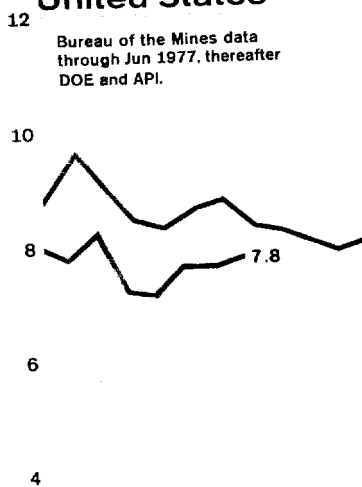
¹Except for the United States, excluding bunkers, refinery fuel, and losses.

NET OIL IMPORTS MILLION B/D

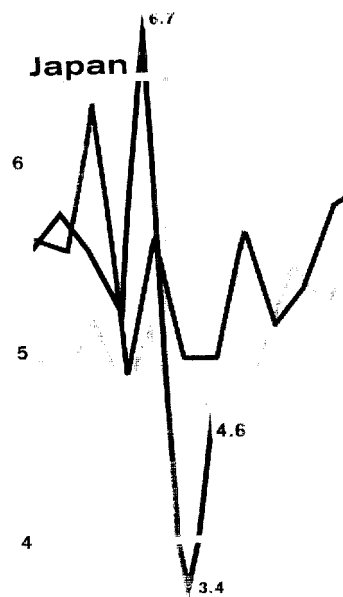
Big Seven



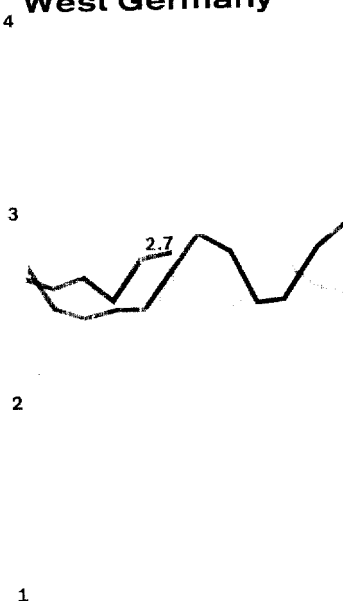
United States



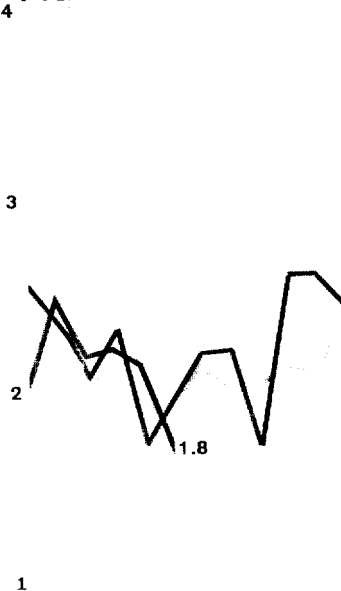
Japan



West Germany



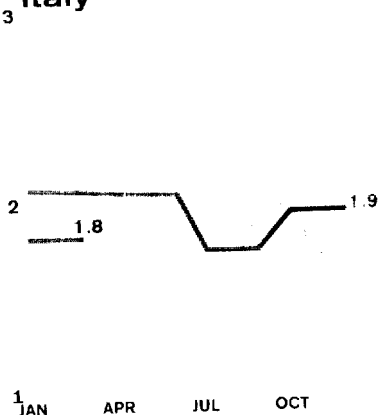
France



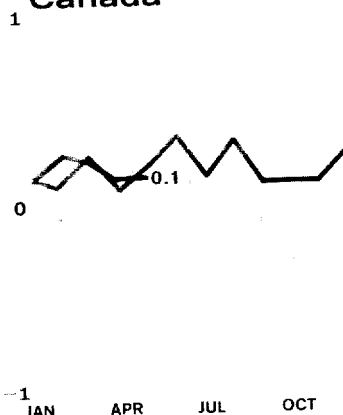
United Kingdom



Italy



Canada



1978
1977
1975
1973

World Crude Oil Production, Excluding Natural Gas Liquids

Thousand b/d

	1973	1975	1976	1977	1978				
					Preliminary				
					1st Qtr	Apr	May	Jun	Jul
World	55,745	52,990	57,290	59,480	57,780	59,210	57,940	59,150	59,480
Free World	45,840	41,470	45,050	46,570	44,400	45,720	44,410	45,640	45,860
Western hemisphere	16,130	14,135	13,780	14,010	14,080	14,610	14,590	15,100	15,030
United States	9,210	8,375	8,130	8,180	8,510	8,710	8,590	8,610	8,900
Venezuela	3,365	2,345	2,295	2,240	1,830	2,210	2,260	2,350	2,300
Canada	1,800	1,460	1,300	1,320	1,290	1,100	1,150	1,530	1,180
Mexico	450	715	800	980	1,110	1,140	1,150	1,170	1,200
Argentina	420	390	390	430	430	450	460	440	440
Ecuador	210	160	185	180	180	230	200	200	230
Other	675	690	680	680	730	770	780	800	780
Eastern hemisphere	29,710	27,335	31,270	32,560	30,320	31,110	29,820	30,540	30,830
Western Europe	370	550	855	1,370	1,590	1,660	1,760	1,690	1,770
Norway	30	190	280	280	380	370	340	270	370
United Kingdom	Negl.	20	245	770	900	980	1,110	1,110	1,090
Other	340	340	330	320	310	310	310	310	310
Middle East	21,220	19,590	22,135	22,230	20,440	21,010	19,510	20,120	20,180
Saudi Arabia ¹	7,595	7,075	8,575	9,200	7,940	8,050	7,250	7,480	7,420
Iran	5,860	5,350	5,885	5,660	5,470	5,610	5,720	5,630	5,800
Kuwait ¹	3,020	2,085	2,145	1,970	1,860	1,990	1,800	1,930	1,950
Iraq	2,020	2,260	2,415	2,330	2,290	2,500	1,900	2,200	2,100
United Arab Emirates	1,535	1,665	1,935	2,010	1,820	1,750	1,870	1,840	1,830
Abu Dhabi	1,305	1,370	1,585	1,660	1,440	1,370	1,480	1,450	1,450
Dubai	230	255	310	320	350	360	370	370	360
Sharjah	...	40	40	30	30	20	20	20	20
Qatar	570	440	495	430	450	510	380	450	490
Oman	295	340	365	340	330	320	310	310	310
Syria	105	185	190	180	170	170	170	170	170
Other	220	190	130	110	110	110	110	110	110
Africa	5,900	4,980	5,800	6,190	5,450	5,620	5,710	5,940	6,090
Nigeria	2,055	1,785	2,070	2,100	1,580	1,690	1,720	1,890	1,910
Libya	2,175	1,480	1,935	2,080	1,820	1,870	1,930	1,990	2,100
Algeria	1,070	960	990	1,040	1,000	1,000	1,000	1,000	1,000
Gabon	150	225	225	230	220	220	220	220	220
Egypt	165	250	330	420	460	480	480	480	500
Angola/Cabinda	160	140	110	170	200	190	190	190	190
Other	125	140	140	150	170	170	170	170	170
Asia-Pacific	2,220	2,215	2,480	2,770	2,840	2,820	2,840	2,790	2,790
Australia	370	410	425	430	450	420	420	450	430
Indonesia	1,340	1,305	1,505	1,690	1,700	1,680	1,700	1,620	1,620
Malaysia-Brunei	320	300	330	400	420	440	440	440	460
Other	190	200	220	250	270	280	280	280	280
Communist Countries	9,905	11,520	12,240	12,910	13,380	13,490	13,530	13,510	13,620
USSR	8,420	9,630	10,170	10,700	10,990	11,100	11,140	11,120	11,230
China	1,090	1,490	1,670	1,810	1,990	1,990	1,990	1,990	1,990
Romania	285	290	290	290	290	290	290	290	290
Other	110	110	110	110	110	110	110	110	110

¹ Including the share of Neutral Zone crude oil production which amounted to about 220,000 b/d for Saudi Arabia and 220,000 b/d for Kuwait in Jul 1978.

Free World Crude Oil Production, Including Natural Gas Liquids

Thousand b/d

	1978									
	Preliminary									
	1973	1975	1976	1977	1st Qtr	Apr	May	Jun	Jul	
Free World	48,465	44,075	47,725	49,365	47,325	48,645	47,335	48,565	48,785	
Non-OPEC Producers	17,155	16,535	16,570	17,640	18,490	18,660	18,710	19,090	19,140	
United States	10,950	10,010	9,735	9,800	10,090	10,290	10,170	10,190	10,480	
Canada	2,120	1,770	1,585	1,610	1,580	1,390	1,440	1,820	1,470	
United Kingdom	5	30	260	800	940	1,020	1,150	1,150	1,130	
Norway	30	195	300	300	415	405	375	305	405	
Mexico	525	805	895	1,085	1,245	1,275	1,285	1,305	1,335	
Other	3,525	3,725	3,795	4,045	4,220	4,280	4,290	4,320	4,320	
OPEC	31,310	27,540	31,155	31,725	28,835	29,985	28,625	29,475	29,645	
Saudi Arabia ¹	7,685	7,215	8,760	9,415	8,190	8,300	7,500	7,730	7,670	
Kuwait ¹	3,080	2,135	2,195	2,025	1,935	2,065	1,875	2,005	2,025	
Libya	2,210	1,505	1,975	2,120	1,860	1,910	1,970	2,030	2,140	
Iraq	2,020	2,260	2,415	2,335	2,295	2,505	1,905	2,205	2,105	
United Arab Emirates	1,535	1,665	1,935	2,025	1,850	1,780	1,900	1,870	1,860	
Abu Dhabi	1,305	1,370	1,585	1,675	1,460	1,390	1,500	1,470	1,470	
Dubai	230	255	310	320	360	370	380	380	370	
Sharjah	...	40	40	30	30	20	20	20	20	
Algeria	1,100	1,020	1,075	1,140	1,115	1,115	1,115	1,115	1,115	
Qatar	570	450	505	435	455	515	385	455	495	
Iran	5,900	5,395	5,930	5,700	5,515	5,655	5,765	5,675	5,845	
Venezuela	3,455	2,420	2,370	2,320	1,910	2,290	2,340	2,430	2,380	
Nigeria	2,055	1,785	2,070	2,100	1,580	1,690	1,720	1,890	1,910	
Indonesia	1,340	1,305	1,515	1,700	1,730	1,710	1,730	1,650	1,650	
Gabon	150	225	225	230	220	220	220	220	220	
Ecuador	210	160	185	180	180	230	200	200	230	

¹ Including the share of Neutral Zone production.World Natural Gas Liquids (NGL) Production ¹

Thousand b/d

	1973	1975	1976	1977	1978		1973	1975	1976	1977	1978
World	2,795	2,810	2,890	3,030		Middle East	190	245	290	335	410
Free World	2,625	2,605	2,675	2,795	2,925	Saudi Arabia	90	140	185	215	250
OPEC	345	405	500	565	675	Iran	40	45	45	40	45
Non-OPEC	2,280	2,200	2,175	2,230	2,250	Kuwait	60	50	50	55	75
Western Hemisphere	2,270	2,155	2,105	2,140	2,130	Qatar	...	10	10	5	5
United States	1,740	1,635	1,605	1,620	1,580	Abu Dhabi	15	20
Venezuela	90	75	75	80	80	Dubai	10
Canada	320	310	285	290	290	Iraq	5	5
Mexico	75	90	95	105	135	Africa	65	85	125	140	155
Other	45	45	45	45	45	Libya	35	25	40	40	40
Eastern Hemisphere	355	450	570	655	795	Algeria	30	60	85	100	115
Western Europe	40	50	70	85	110	Asia-Pacific	60	70	85	95	120
Norway	...	5	20	20	35	Australia	50	50	50	55	60
United Kingdom	5	10	15	30	40	Indonesia	10	10	30
Other	35	35	35	35	35	Other	10	20	25	30	30
						Communist Countries	170	205	215	235	
						USSR	160	190	200	220	
						China	N.A.	N.A.	N.A.	N.A.	
						Other	10	15	15	15	

¹ Estimated.

OAPEC¹ and OPEC² Countries: Crude Oil Production, Excluding Natural Gas Liquids

Thousand b/d

	1978									
	Preliminary									
	1973	1975	1976	1977	1st Qtr	Apr	May	Jun	Jul	
Total OAPEC (thousand b/d)	18,095	16,165	18,720	19,370	17,490	17,890	16,440	17,200	17,230	
% change from Sep 1973 ³		-19	-7	-3	-13	-11	-18	-14	-14	
% change from Dec 1976 ⁴				-8	-17	-15	-22	-18	-18	
Total OPEC (thousand b/d)	30,965	27,135	30,655	31,160	28,160	29,310	27,950	28,800	28,970	
% change from Sep 1973 ³		-18	-7	-5	-15	-11	-15	-13	-12	
% change from Dec 1976 ⁴				-9	-17	-14	-18	-15	-15	

¹ The members of the Organization of Arab Petroleum Exporting Countries are Abu Dhabi, Algeria, Bahrain, Egypt, Iraq, Kuwait, Libya, Qatar, Saudi Arabia, and Syria.

² The membership of the Organization of Petroleum Exporting Countries consists of OAPEC members (excluding Bahrain, Egypt, and Syria), plus Dubai, Ecuador, Gabon, Indonesia, Iran, Nigeria, Sharjah, and Venezuela.

³ In Sep 1973, the pre-crisis level of output, OAPEC countries produced 20,038 b/d and OPEC countries 32,956 b/d.

⁴ In Dec 1976, the post-crisis peak of output, OAPEC countries produced 21,060 b/d and OPEC countries 34,070 b/d.

OPEC: Crude Oil Productive Capacity

Thousand b/d

	Capacity			Production	
	Installed ¹	Maximum		Latest Post-Embargo Peak	Current
		Sustainable ²	Available ³		
Total	40,815	36,605	33,200		
Algeria	1,200	1,080	1,080	1,080 (Jan 77)	1,000 (Jul 78)
Ecuador	250	225	225	260 (May 74)	230 (Jul 78)
Gabon	250	225	225	230 (Dec 77)	225 (Jul 78)
Indonesia	1,800	1,700	1,700	1,740 (Mar 77)	1,620 (Jul 78)
Iran	7,000	6,500	6,500	6,680 (Nov 76)	5,800 (Jul 78)
Iraq	3,150	3,000	3,000	2,900 (Dec 77)	2,100 (Jul 78)
Kuwait ⁴	3,200	3,000	2,000	2,990 (Dec 76)	1,730 (Jul 78)
Libya	2,500	2,300	2,300	2,210 (Mar 77)	2,100 (Jul 78)
Neutral Zone ⁵	680	600	600	670 (Dec 76)	440 (Jul 78)
Nigeria	2,400	2,300	2,300	2,330 (Oct 74)	1,910 (Jul 78)
Qatar	650	600	600	610 (Dec 75)	490 (Jul 78)
Saudi Arabia ⁴	12,500	10,100	8,500	9,990 (Apr 77)	7,200 (Jul 78)
United Arab Emirates	2,535	2,375	1,870		
Abu Dhabi	2,100	1,965	1,460	1,830 (Jul 75)	1,450 (Jul 78)
Dubai	380	360	360	370 (Jun 78)	360 (Jul 78)
Sharjah	55	50	50	60 (Dec 74)	20 (Jul 78)
Venezuela	2,700	2,600	2,300	2,950 (Jun 74)	2,300 (Jul 78)

¹ Installed capacity, also called nameplate or design capacity, includes all aspects of crude oil production, processing, transportation, and storage. Installed capacity is generally the highest capacity estimate.

² Maximum sustainable or operational capacity is the maximum production rate that can be sustained for several months; it considers the experience of operating the total system and is generally some 90-95 percent of installed capacity. This capacity concept does not necessarily reflect the maximum production rate sustainable without damage to the fields.

³ Available or allowable capacity reflects production ceilings applied by Abu Dhabi, Kuwait, Saudi Arabia, and Venezuela. These ceilings usually represent a constraint only on annual average output, and thus production may exceed the ceilings in a given month.

⁴ Excluding share of capacity in the Neutral Zone, shown separately.

⁵ Capacity and production is shared about equally between Kuwait and Saudi Arabia.

⁶ In Saudi Arabia, the concept of "facility," rather than "installed" capacity, is used. Facility capacity refers to the total installed capacity of gas-oil separating plants, main trunk pipelines, and oil-load terminals; it does not include the capacity of salt water-oil separators or flow lines.

A Note on Petroleum Reserves

Any estimate of oil and natural gas reserves must be treated as a rough approximation. Few countries publish official reserve estimates, and there is no consistent rigorous definition of reserves. Moreover, the volume of oil and/or gas in place, even in a well-delineated field, can never be precisely accurate; estimates of commercially recoverable oil and natural gas are usually made not by reference to existing technology but by reference to the production system currently in use, and even this can provide only an approximation. Assessments of proved reserves therefore do not mean absolute world availability; they are only an indication of the quantity of oil that is technically and economically feasible to extract with current techniques at current prices.

CIA's reserve figures are for *proved and probable* reserves and are based on the best available published information; where there are conflicting data, we use our own judgmental analysis. CIA uses the restrictive definition of *probable* reserves (as differentiated from *possible* reserves) common in the industry. Our *proved and probable* figure does not differ greatly from the *proved* figure in many cases, such as Venezuela, Iran, and Libya. In these countries, extensive exploration has taken place and extensions of known fields are considered unlikely. In other cases—such as Saudi Arabia, Mexico, and the United Kingdom—differences between *proved* and *proved and probable* reserves are considerably larger.

Estimated Proved and Probable Petroleum Reserves

Area and Country	Crude Oil Billion Barrels	Natural Gas Trillion Cubic Feet	Area and Country	Crude Oil Billion Barrels	Natural Gas Trillion Cubic Feet
World	657	2,626 ¹	Africa	59	211
Free World	592	1,764	Libya	25	25
Western Hemisphere	96	426	Nigeria	19	46
United States ²	39	219	Algeria	7	127
Mexico	30	46	Egypt	4	3
Venezuela	14	43	Gabon	1	Negl.
Canada ²	8	71	Angola-Cabinda	1	Negl.
Ecuador	2	11	Tunisia	1	7
Argentina	2	11	Other	1	3
Brazil	1	7	Western Europe	31	177
Colombia	1	7	United Kingdom	20	46
Peru	2	7	Norway	8	25
Trinidad and Tobago	2	7	Netherlands	Negl.	71
Eastern Hemisphere	496	1,338	Spain	1	Negl.
Middle East	384	845	Other	2	35
Saudi Arabia	150	106	Asia-Pacific	22	105
Kuwait	71	35	Indonesia	14	21
Iran ³	60	600	Brunei	2	11
Iraq	36	35	Malaysia	2	14
United Arab Emirates	34	35	Australia	2	35
Neutral Zone	17	7	India	2	3
Qatar	7	18	Pakistan	Negl.	21
Oman	6	3	Communist Countries	65	862
Syria	2	3	USSR	40	812
Other	1	3	China	20	25
			Other	5	25

¹ Equivalent to 470 billion barrels of oil.

² Including Arctic gas deposits and natural gas liquids.

³ Including recent discoveries.

Estimated Imports of Crude Oil and Refined Products
1977

	Thousand b/d										
	US ¹	Japan	Canada	Western Europe	West Germany	France	UK	Italy	Netherlands	Spain	Other Western Europe
Algeria	559	3	...	407	199	98	7	30	6	23	44
Bahrain	10	38	...	2	2
Egypt	38	25	2	5	18
Iraq	96	151	18	1,221	22	365	110	274	69	111	270
Kuwait	55	518	4	656	29	72	184	152	123	24	72
Libya	837	20	...	1,039	394	55	44	296	23	83	144
Qatar	97	38	...	160	19	63	33	17	11	...	17
Saudi Arabia	1,515	1,772	156	3,299	402	870	369	629	345	317	367
Syria	2	70	26	44
United Arab Emirates	424	546	6	798	171	234	84	56	82	83	88
OAPEC	3,633	3,086	184	7,677	1,264	1,806	851	1,454	659	641	1,002
Ecuador	58
Gabon	59	59	8	38	...	2	...	5	6
Indonesia	568	721	...	20	14	2	...	4
Iran	786	870	118	1,885	315	189	259	293	273	245	311
Nigeria	1,229	...	4	619	180	157	27	7	183	...	65
Venezuela	905	7	287	153	20	17	21	29	4	20	42
OPEC²	7,188	4,646	593	10,316	1,773	2,158	1,138	1,785	1,121	911	1,430
Canada	516	2	2
Mexico	180
Other ³	810	770	120	2,693	967	307	533	505	240	103	2,313
Total	8,744	5,454	713	13,108	2,768	2,514	1,691	2,290	1,361	1,014	3,745

¹ Products traced to source of crude.

² OAPEC members excluding Bahrain, Egypt, and Syria plus other countries shown.

³ Includes unknown.

Selected Developed Countries: Crude Oil Imports, by Source

Thousand b/d										
	Sep 1973 (Pre-Crisis Level)	1978							Percent of Total	
		1975	1976	1977	1st Qtr	Apr	May	Jun	Sep 1973	Jun 1978
United States										
Algeria	124	264	408	538	670	577	643	743	3.6	11.7
Egypt	...	5	17	36	15
Iraq	17	2	26	76	49	20	32	67	0.5	1.1
Kuwait	44	4	1	42	19	1.3	...
Libya	153	223	444	696	557	570	489	624	4.4	9.8
Qatar	41	18	24	67	69	92	8	97	1.2	1.5
Saudi Arabia	599	701	1,222	1,369	1,102	987	786	1,111	17.3	17.4
United Arab Emirates ¹	88	117	254	331	373	435	404	343	2.5	5.4
Other ²	2	...	18
Total OAPEC	1,066	1,334	2,396	3,157	2,854	2,699	2,362	2,985	30.7	46.9
Ecuador	33	57	51	54	57	24	15	24	0.9	0.4
Gabon	...	27	26	35	36	67	15	37	...	0.6
Indonesia	249	379	537	502	442	468	497	579	7.2	9.1
Iran	205	278	298	525	583	409	730	509	5.9	8.0
Nigeria	409	746	1,014	1,123	833	580	786	847	11.8	13.3
Venezuela	405	395	241	249	129	104	175	205	11.7	3.2
Total OPEC ³	2,367	3,211	4,546	5,607	4,919	4,333	4,580	5,186	68.2	81.4
Canada	998	600	371	278	253	229	208	242	28.8	3.8
Mexico	8	70	87	177	228	226	258	287	0.2	4.5
UK	...	Negl.	13	96	167	169
Norway	...	12	35	48	89	139
Other ⁴	98	207	218	324	292	325	539	655	2.8	10.3
Total	3,471	4,105	5,287	6,568	5,963	5,439	5,585	6,370	100.0	100.0

Thousand b/d									
	Sep 1973 (Pre-Crisis Level)	1978						Percent of Total	
		1975	1976	1977	1st Qtr	Apr	May	Sep 1973	May 1978
Canada									
Algeria	...	Negl.
Egypt
Iraq	23	31	29	19	30	34	32	2.4	6.3
Kuwait	...	29	2	4
Libya	56	9	20	6.0	...
Qatar	...	2
Saudi Arabia	82	165	109	157	136	80	64	8.7	12.6
United Arab Emirates ¹	49	46	57	6	5.2	...
Other ²
Total OAPEC	210	282	217	186	166	114	96	22.3	18.9
Ecuador	13	1	1.4	...
Gabon	...	3
Indonesia
Iran	149	202	157	121	152	124	90	15.9	17.7
Nigeria	39	17	28	5	4.1	...
Venezuela	485	265	269	258	210	190	167	51.6	32.8
Total OPEC ³	896	770	671	570	528	428	353	95.3	69.4
Other ⁴	44	54	49	99	108	142	156	4.7	30.6
Total	940	824	720	669	636	570	509	100.0	100.0

Selected Developed Countries: Crude Oil Imports, by Source
(Continued)

Thousand b/d										
	Sep 1973 (Pre- Crisis Level)	1975	1976	1977	1978				Percent of Total	
					1st Qtr	Apr	May	Jun	Sep 1973	Jun 1978
Japan										
Algeria	...	6	...	3	8	13	...	0.5
Egypt	Negl.
Iraq	...	92	127	151	171	184	170	52	...	1.8
Kuwait	488	416	342	398	452	367	516	304	10.0	10.7
Libya	31	59	41	20	5	20	20	...	0.6	...
Qatar	...	3	2	36	113	148	145	27	...	1.0
Saudi Arabia	1,148	1,355	1,572	1,622	1,647	1,418	1,945	977	23.5	34.4
United Arab Emirates ¹	511	408	530	545	497	346	581	311	10.5	11.0
Other ²
Total OAPEC	2,181	2,339	2,014	2,775	2,893	2,463	3,377	1,684	44.7	59.4
Ecuador
Gabon
Indonesia	638	518	553	651	677	669	656	368	13.1	13.0
Iran	1,554	1,147	928	812	853	1,028	1,188	514	31.9	18.1
Nigeria	101	71	17	2.1	...
Venezuela	7	5	6	6	7	7	7	2	0.1	Negl.
Total OPEC ³	4,481	4,080	4,118	4,244	4,430	4,167	5,228	2,568	91.9	90.6
Other ⁴	397	459	483	547	550	529	764	268	8.1	9.4
Total	4,878	4,539	4,601	4,791	4,980	4,696	5,992	2,836	100.0	100.0

	Thousand b/d							Percent of Total	
	Sep 1973 (Pre-Crisis Level)	1975	1976	1977	1978				
					1st Qtr	2d Qtr	Jul	Sep 1973	Jul 1978
United Kingdom									
Abu Dhabi	28	47	29	43	54	42	...	1.5	...
Algeria	46	29	18	7	13	2.4	1.0
Egypt	...	16	3	14	10	14
Iraq	67	52	105	110	153	154	313	3.5	23.9
Kuwait	293	218	229	184	277	211	184	15.3	14.0
Libya	98	53	45	40	38	42	27	5.1	2.1
Qatar	73	77	94	33	8	3.8	...
Saudi Arabia	530	444	370	369	354	121	310	27.6	23.6
Other ²	...	16	3
Total OAPEC	1,135	952	896	800	894	584	847	59.2	64.6
Dubai	48	30	45	41	42	49	29	2.5	2.2
Ecuador	5
Gabon
Indonesia
Iran	317	351	398	259	244	125	221	16.5	16.8
Nigeria	188	117	76	27	17	74	13	9.8	1.0
Sharjah
Venezuela	66	64	29	21	20	25	27	3.4	2.1
Total OPEC ³	1,754	1,482	1,438	1,134	1,207	848	1,137	91.5	86.7
Other ⁴	163	261	326	257	248	202	175	8.5	13.3
Total	1,917	1,775	1,770	1,405	1,465	1,064	1,312	100.0	100.0

Selected Developed Countries: Crude Oil Imports, by Source
(Continued)

	Thousand b/d								Percent of Total	
	Sep 1973	1978								
	(Pre-Crisis Level)	1975	1976	1977	1st Qtr	Apr	May	Jun	Sep 1973	Jun 1978
West Germany										
Algeria	239	204	210	197	209	207	187	171	10.4	9.3
Egypt	...	4	3	6	...	14	...	0.8
Iraq	43	28	35	22	33	60	...	61	1.9	3.3
Kuwait	102	54	25	15	12	29	45	30	4.4	1.6
Libya	418	296	421	383	327	272	324	272	18.2	14.9
Qatar	18	25	24	19	29	...	29	...	0.8	...
Saudi Arabia	710	371	378	401	239	303	268	336	30.9	18.4
United Arab Emirates ¹	162	158	125	171	159	102	139	85	7.1	4.6
Other ²	26	16	25	26	14	20	31	49	1.1	2.7
Total OAPEC	1,718	1,156	1,243	1,234	1,025	999	1,023	1,018	74.8	55.6
Ecuador
Gabon	32	21	11	7	8	5	20	15	1.4	0.8
Indonesia	4	14	11	13	21	13	...	0.7
Iran	248	284	380	315	341	309	394	317	10.8	17.3
Nigeria	168	202	181	180	150	193	146	174	7.3	9.5
Venezuela	42	43	28	19	12	14	26	29	1.8	1.6
Total OPEC ³	2,182	1,686	1,822	1,743	1,530	1,507	1,599	1,503	95.0	82.1
UK	14	70	103	60	170	145	...	7.9
Norway	Negl.	12	23	32	50	56	42	44	...	2.4
Other ⁴	89	89	95	80	86	69	84	76	3.9	4.2
Total	2,297	1,807	1,979	1,951	1,786	1,718	1,926	1,831	100.0	100.0

Thousand b/d										
	Sep 1973 (Pre-Crisis Level)	1978							Percent of Total	
		1975	1976	1977	1st Qtr	Apr	May	Jun	Sep 1973	Jun 1978
France										
Abu Dhabi	249	210	202	193	80	300	70	235	9.0	12.4
Algeria	227	118	95	98	95	92	70	65	8.2	3.4
Egypt	1	4	13	5	13	15	...	13	Negl.	0.7
Iraq	375	240	335	365	435	369	392	209	13.6	11.0
Kuwait	316	134	86	72	39	82	40	10	11.4	0.5
Libya	131	44	62	55	66	83	68	77	4.7	4.1
Qatar	69	47	58	63	56	74	145	49	2.5	2.6
Saudi Arabia	623	669	870	870	897	900	802	669	22.5	35.2
Other ²	12	41	60	44	63	20	35	...	0.4	...
Total OAPEC	2,003	1,507	1,781	1,765	1,744	1,935	1,622	1,327	72.5	69.8
Dubai	27	43	33	41	52	43	51	37	1.0	1.9
Ecuador
Gabon	33	27	29	38	19	36	26	50	1.2	2.6
Indonesia
Iran	216	266	294	189	208	129	178	205	7.8	10.8
Nigeria	253	175	150	157	167	129	180	132	9.2	6.9
Sharjah
Venezuela	36	15	16	17	15	9	16	13	1.3	0.7
Total OPEC ³	2,555	1,988	2,230	2,158	2,129	2,317	2,038	1,751	92.4	92.1
UK	7	33	34	22	33	18	...	0.9
Norway	...	18	46	26	29	17	49	18	...	0.9
Other ⁴	196	69	61	84	78	63	69	101	7.1	5.3
Total	2,764 ⁴	2,120	2,417	2,350	2,346	2,454	2,224	1,901	100.0	100.0

Selected Developed Countries: Crude Oil Imports, by Source

(Continued)

	Thousand b/d								
	4th Qtr 1973 (Pre- Crisis Level)	1975	1976	1977			1978	Percent of Total	
				1st Half	3d Qtr	4th Qtr	1st Qtr	4th Qtr 1973	1st Qtr 1978
Italy	61	77	51	21	39	35	68	2.4	3.3
Algeria
Egypt
Iraq	383	374	312	331	174	310	356	15.2	17.4
Kuwait	212	82	47	143	142	159	201	8.4	9.8
Libya	597	260	340	301	241	269	262	23.7	12.8
Qatar	21	26	26	24	15	15	7	0.8	0.3
Saudi Arabia	692	527	545	653	601	593	443	27.5	21.7
United Arab Emirates ¹	...	33	50	68	37	106	140	...	6.8
Other ²
Total OAPEC	1,966	1,379	1,371	1,541	1,249	1,487	1,477	78.2	72.2
Ecuador
Gabon	3	6	1	5	4	0.1	0.2
Indonesia
Iran	277	258	292	273	266	347	278	11.0	13.6
Nigeria	9	7	7	14	...	4	5	0.4	0.2
Venezuela	18	20	16	11	19	14	14	0.7	0.7
Total OPEC ³	2,273	1,670	1,687	1,844	1,534	1,852	1,778	90.4	86.9
UK	13	4
Norway	4
Other ⁴	241	271	371	339	373	351	268	9.6	13.1
Total	2,514	1,941	2,071	2,187	1,911	2,203	2,046	100.0	100.0

¹ Including oil imports from Abu Dhabi and possibly from Dubai and Sharjah, which are not members of OAPEC.² Including, when applicable, Bahrain and Syria.³ Consisting of OAPEC members (excluding Bahrain, Egypt, and Syria) plus the other countries shown.⁴ Including data that cannot be distributed by area of origin.

Thousand b/d

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Average
United States¹													
1973													
Crude imports	2,732	2,873	3,162	3,049	3,215	3,220	3,501	3,593	3,471	3,740	3,452	2,891	3,244
Product imports	3,079	3,501	3,413	2,551	2,603	2,659	2,671	2,913	2,903	2,785	3,412	3,055	3,012
Total imports	5,811	6,374	6,575	5,600	5,818	5,879	6,172	6,506	6,374	6,525	6,864	5,946	6,256
Exports	210	260	224	275	237	215	240	217	242	221	202	227	231
Net imports	5,601	6,114	6,351	5,325	5,581	5,664	5,932	6,289	6,132	6,304	6,662	5,719	6,025
1975													
Crude imports	4,029	3,828	3,656	3,378	3,486	3,905	4,192	4,581	4,689	4,389	4,623	4,476	4,105
Product imports	2,832	2,348	2,074	1,662	1,728	1,502	1,767	1,717	2,115	1,940	1,796	1,949	1,951
Total imports	6,861	6,176	5,730	5,040	5,214	5,407	5,959	6,298	6,804	6,329	6,419	6,425	6,056
Exports	228	248	213	190	202	224	186	203	205	187	166	262	209
Net imports	6,633	5,928	5,517	4,850	5,012	5,183	5,773	6,095	6,599	6,142	6,253	6,163	5,847
1976													
Crude imports	4,594	4,208	4,738	4,790	4,669	5,621	5,792	5,556	5,875	5,689	5,946	5,925	5,287
Product imports	2,016	2,423	1,946	1,805	1,654	1,858	2,099	1,826	2,049	1,847	2,114	2,353	2,008
Total imports	6,610	6,631	6,684	6,595	6,323	7,479	7,891	7,382	7,924	7,536	8,060	8,278	7,295
Exports	156	241	185	222	180	213	242	220	196	198	348	309	223
Net imports	6,454	6,390	6,499	6,373	6,143	7,266	7,649	7,162	7,728	7,338	7,712	7,969	7,072
1977													
Crude imports	6,288	6,652	6,633	6,785	6,821	6,997	7,021	6,416	6,429	6,363	6,303	6,128	6,568
Product imports	2,594	3,278	2,610	1,886	1,753	1,872	2,021	2,175	2,136	1,862	1,814	2,183	2,176
Total imports	8,882	9,930	9,243	8,671	8,574	8,869	9,042	8,591	8,565	8,225	8,117	8,311	8,744
Exports	192	234	207	223	288	225	253	230	294	208	235	274	243
Net imports	8,690	9,696	9,036	8,448	8,286	8,644	8,789	8,361	8,271	8,017	7,882	8,037	8,501
1978													
Crude imports	6,088	5,660	6,113	5,439	5,585	6,370	6,212	6,380					
Product imports	2,066	2,337	2,323	2,100	1,776	1,482	1,664	1,649					
Total imports	8,154	7,997	8,436	7,539	7,361	7,852	7,876	8,029					
Exports	256	208	269	337	244	230	252	269					
Net Imports	7,898	7,789	8,167	7,202	7,117	7,622	7,624	7,760					
Canada													
1973													
Crude imports	945	975	932	772	930	741	1,058	937	940	799	934	802	897
Product imports	163	93	55	37	119	121	122	153	105	132	140	149	130
Total imports	1,108	1,068	987	809	1,049	862	1,180	1,090	1,045	931	1,074	951	1,027
Exports	1,357	1,500	1,364	1,472	1,495	1,446	1,162	1,298	1,300	1,363	1,357	1,237	1,364
Net imports	-249	-432	-377	-663	-446	-584	18	-208	-255	-432	-283	-322	-337
1975													
Crude imports	1,052	915	849	804	1,067	850	678	946	716	516	562	929	824
Product imports	48	68	27	46	56	56	48	50	40	57	26	27	41
Total imports	1,100	983	876	850	1,123	906	726	996	756	573	588	956	865
Exports	1,122	1,068	834	815	745	702	893	903	936	921	1,017	848	899
Net imports	-22	-85	42	35	378	204	-167	93	-180	-348	-429	108	-34
1976													
Crude imports	738	783	870	802	793	832	825	728	409	565	690	596	720
Product imports	21	26	30	16	45	45	43	54	23	60	50	20	36
Total imports	759	809	900	818	838	877	868	782	432	625	740	616	756
Exports	1,029	669	569	636	650	676	815	571	603	605	625	612	646
Net imports	-270	140	331	182	188	201	53	211	-171	20	115	4	110
1977													
Crude imports	729	645	752	585	679	802	614	767	515	590	584	743	669
Product imports	28	25	27	19	49	60	37	57	91	47	57	49	45
Total imports	757	670	779	604	728	862	651	824	606	637	641	792	714
Exports	611	568	522	526	515	506	523	487	500	517	517	517	526
Net imports	146	102	257	78	213	356	128	337	106	120	124	275	188
1978													
Crude Imports	597	699	636	570	509								
Product Imports	50	32	19	21	67								
Total Imports	647	731	655	591	576								
Exports	559	515	468	485	460								
Net Imports	88	216	187	106	116								
Japan													
1973													
Crude imports	4,662	4,775	4,830	4,864	4,918	5,043	4,697	5,550	4,878	5,483	5,029	5,139	4,992
Product imports	640	803	650	542	664	640	523	507	443	592	533	486	584
Total imports	5,302	5,578	5,480	5,406	5,582	5,683	5,220	6,057	5,321	6,075	5,562	5,625	5,576
Exports	11	33	23	28	19	13	39	31	21	25	13	25	24
Net imports	5,291	5,545	5,457	5,378	5,563	5,670	5,181	6,026	5,300	6,050	5,549	5,600	5,552

	Thousand b/d												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
Japan (Continued)													
1975													
Crude imports	4,581	4,502	4,773	4,304	4,765	3,956	4,401	4,120	4,637	4,928	4,611	4,880	4,539
Product imports	471	367	466	445	439	361	487	489	461	518	545	574	469
Total imports	5,052	4,869	5,239	4,749	5,204	4,317	4,888	4,609	5,098	5,446	5,156	5,454	5,008
Exports	80	52	40	38	61	40	42	17	5	7	5	6	32
Net imports	4,972	4,817	5,199	4,711	5,143	4,277	4,846	4,592	5,093	5,439	5,151	5,448	4,976
1976													
Crude imports	3,901	4,683	4,586	4,989	4,217	4,469	4,690	4,391	4,492	4,642	5,165	5,019	4,601
Product imports	699	649	704	563	593	637	669	651	747	504	615	634	634
Total imports	4,600	5,332	5,290	5,552	4,810	5,106	5,359	5,042	5,239	5,146	5,780	5,653	5,235
Exports	3	5	9	4	4	5	5	6	9	4	9	6	6
Net imports	4,597	5,327	5,281	5,548	4,806	5,101	5,354	5,036	5,230	5,142	5,771	5,647	5,229
1977													
Crude imports	5,023	4,857	5,671	4,210	4,955	4,234	4,398	4,940	4,450	4,528	5,041	5,152	4,791
Product imports	584	686	665	632	682	729	561	644	705	739	630	705	663
Total imports	5,607	5,543	6,336	4,842	5,637	4,963	4,959	5,584	5,155	5,267	5,671	5,857	5,454
Exports	7	8	8	6	4	11	8	5	7	13	9	12	8
Net imports	5,600	5,535	6,328	4,836	5,633	4,952	4,951	5,579	5,148	5,254	5,662	5,845	5,446
1978													
Crude imports	4,954	5,130	4,871	4,696	5,992	2,836	3,916						
Product imports	624	655	709	555	734	616	662						
Total imports	5,578	5,785	5,580	5,251	6,726	3,452	4,578						
Exports	7	27	38	18	10	15	11						
Net imports	5,571	5,758	5,542	5,233	6,716	3,437	4,567						
France													
1973													
Crude imports	2,897	2,699	2,955	2,728	2,540	2,676	2,288	2,791	2,764	2,797	3,053	2,549	2,728
Product imports	137	174	148	142	176	128	138	169	139	171	126	117	147
Total imports	3,034	2,873	3,103	2,870	2,716	2,804	2,426	2,960	2,903	2,968	3,179	2,666	2,875
Exports	255	260	232	226	317	290	246	307	307	261	253	279	269
Net imports	2,779	2,613	2,871	2,644	2,399	2,514	2,180	2,653	2,596	2,707	2,926	2,387	2,606
1975													
Crude imports	2,234	2,056	2,095	2,047	1,952	1,989	2,130	2,201	2,136	2,199	2,203	2,462	2,120
Product imports	213	266	203	165	127	162	180	100	118	113	131	131	158
Total imports	2,447	2,322	2,298	2,212	2,079	2,151	2,310	2,301	2,254	2,312	2,334	2,593	2,278
Exports	209	221	175	217	190	230	182	302	264	214	267	259	227
Net imports	2,238	2,101	2,123	1,995	1,889	1,921	2,128	1,999	1,990	2,098	2,067	2,334	2,051
1976													
Crude imports	2,175	2,447	2,600	2,500	2,188	2,039	2,456	2,370	2,517	2,180	2,767	2,704	2,417
Product imports	134	143	158	158	128	233	266	218	199	223	170	151	181
Total imports	2,309	2,590	2,758	2,658	2,316	2,272	2,722	2,588	2,716	2,403	2,937	2,855	2,598
Exports	276	325	395	316	272	324	244	288	274	207	268	288	249
Net imports	2,033	2,265	2,363	2,342	2,044	1,948	2,478	2,300	2,442	2,196	2,669	2,567	2,349
1977													
Crude imports	2,711	2,508	2,198	2,537	1,944	2,079	2,289	2,360	1,810	2,646	2,592	2,523	2,350
Product imports	123	117	169	166	145	183	171	216	147	179	211	138	164
Total imports	2,834	2,625	2,367	2,703	2,089	2,262	2,460	2,576	1,957	2,825	2,803	2,661	2,514
Exports	277	266	286	356	366	276	278	351	279	260	251	295	295
Net imports	2,557	2,359	2,081	2,347	1,723	1,986	2,182	2,225	1,678	2,565	2,552	2,366	2,219
1978													
Crude imports	2,099	2,632	2,335	2,454	2,224	1,901							
Product imports	207	186	196	133	215	166							
Total imports	2,306	2,818	2,531	2,587	2,439	2,067							
Exports	268	297	302	331	262	304							
Net imports	2,038	2,521	2,229	2,256	2,177	1,763							
Italy													
1973													
Crude imports	2,308	2,448	2,600	2,598	2,498	2,996	2,779	2,784	2,606	2,548	1,844	N.A.	2,567
Product imports	76	133	97	98	154	98	109	137	232	29	65	N.A.	102
Total imports	2,384	2,581	2,697	2,696	2,652	3,094	2,888	2,921	2,838	2,577	1,909	N.A.	2,669
Exports	604	628	513	595	678	671	775	725	586	630	515	N.A.	579
Net imports	1,780	1,953	2,184	2,101	1,974	2,423	2,113	2,196	2,252	1,947	1,394	N.A.	2,090
1975													
Crude imports	1,858	1,688	1,724	1,841	1,659	1,949	1,706	1,918	2,236	2,117	1,752	1,990	1,941
Product imports	172	229	246	246	319	181	219	142	138	202	191	229	180
Total imports	2,030	1,917	1,970	2,087	1,978	2,130	1,925	2,060	2,374	2,319	1,943	2,219	2,121
Exports	240	264	212	240	246	308	285	413	394	324	252	236	291
Net imports	1,790	1,653	1,758	1,847	1,732	1,822	1,640	1,647	1,980	1,995	1,691	1,983	1,830

Selected Developed Countries: Trends in Oil Trade
(Continued)

	Thousand b/d												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
Italy (Continued)													
1976													
Crude imports	2,024	2,024	2,024	2,014	2,014	2,014	2,115	2,115	2,115	2,131	2,131	2,131	2,071
Product imports	160	160	160	216	216	216	219	219	219	194	194	194	197
Total imports	2,184	2,184	2,184	2,230	2,230	2,230	2,334	2,334	2,334	2,325	2,325	2,325	2,268
Exports	271	271	271	337	337	337	322	322	322	289	289	289	305
Net imports	1,913	1,913	1,913	1,893	1,893	1,893	2,012	2,012	2,012	2,036	2,036	2,036	1,963
1977													
Crude imports	2,185	2,185	2,185	2,189	2,189	2,189	1,957	1,957	1,957	2,154	2,154	2,154	2,109
Product imports	229	229	229	209	209	209	143	143	143	135	135	135	181
Total imports	2,414	2,414	2,414	2,398	2,398	2,398	2,100	2,100	2,100	2,289	2,289	2,289	2,290
Exports	374	374	374	380	380	380	364	364	364	393	393	393	376
Net imports	2,040	2,040	2,040	2,018	2,018	2,018	1,736	1,736	1,736	1,896	1,896	1,896	1,914
1978													
Crude imports	2,046	2,046	2,046										
Product imports	165	165	165										
Total imports	2,211	2,211	2,211										
Exports	371	371	371										
Net imports	1,840	1,840	1,840										
United Kingdom													
1973													
Crude imports	2,276	2,090	2,273	2,248	2,402	2,535	2,175	2,818	1,917	2,892	2,415	2,004	2,329
Product imports	615	533	457	359	488	439	323	417	361	416	326	208	409
Total imports	2,891	2,623	2,730	2,607	2,890	2,974	2,498	3,235	2,278	3,308	2,741	2,212	2,738
Exports	464	311	323	329	332	257	430	555	496	464	488	293	396
Net imports	2,427	2,312	2,407	2,278	2,558	2,717	2,068	2,680	1,782	2,844	2,253	1,919	2,342
1975													
Crude imports	2,216	2,030	1,491	1,849	1,802	1,926	1,748	1,776	1,687	2,032	1,429	1,599	1,775
Product imports	442	329	267	290	231	257	262	247	240	303	348	344	292
Total imports	2,658	2,359	1,758	2,139	2,033	2,183	2,010	2,023	1,927	2,335	1,777	1,943	2,067
Exports	310	343	224	226	262	303	317	308	357	423	299	261	300
Net imports	2,348	2,016	1,534	1,913	1,771	1,880	1,693	1,715	1,570	1,912	1,478	1,683	1,767
1976													
Crude imports	1,888	1,986	1,762	1,938	1,698	1,814	1,688	1,615	1,779	1,474	2,112	1,724	1,770
Product imports	302	314	421	301	318	267	297	220	221	200	251	283	282
Total imports	2,190	2,300	2,183	2,239	2,016	2,081	1,985	1,835	2,000	1,674	2,363	2,007	2,052
Exports	333	264	384	332	349	328	407	399	488	464	522	447	392
Net imports	1,857	2,036	1,799	1,907	1,667	1,753	1,578	1,436	1,512	1,210	1,841	1,560	1,660
1977													
Crude imports	1,756	1,511	1,672	1,347	1,701	1,449	1,147	1,263	1,358	1,311	932	1,420	1,405
Product imports	253	238	261	272	312	286	261	313	249	257	317	343	286
Total imports	2,009	1,749	1,933	1,619	2,013	1,735	1,408	1,576	1,607	1,568	1,249	1,763	1,691
Exports	546	575	589	538	539	732	597	747	752	528	537	487	598
Net imports	1,463	1,174	1,344	1,081	1,474	1,003	811	829	855	1,040	712	1,276	1,093
1978													
Crude imports	1,597	1,489	1,312	1,018	1,110	1,064	1,312						
Product imports	326	319	377	227	235	245	264						
Total imports	1,923	1,808	1,689	1,245	1,345	1,309	1,576						
Exports	579	645	624	587	740	641	665						
Net imports	1,344	1,163	1,065	658	605	668	911						
West Germany													
1973													
Crude imports	2,177	2,217	2,226	2,201	2,173	2,306	2,091	2,140	2,297	2,359	2,274	2,067	2,210
Product imports	776	788	690	831	870	748	789	710	828	904	859	709	836
Total imports	2,953	3,005	2,916	3,032	3,043	3,054	2,889	2,850	3,125	3,263	3,133	2,776	3,046
Exports	153	177	164	135	184	174	177	185	155	239	235	141	177
Net imports	2,800	2,828	2,752	2,897	2,859	2,880	2,712	2,665	2,970	3,024	2,898	2,635	2,869
1975													
Crude imports	1,684	1,614	1,453	1,798	1,754	1,911	1,676	1,839	1,810	2,051	2,075	1,935	1,807
Product imports	583	766	606	824	575	920	794	767	873	789	667	718	709
Total imports	2,267	2,380	2,059	2,622	2,329	2,831	2,470	2,606	2,683	2,840	2,742	2,653	2,509
Exports	158	120	113	132	100	121	137	120	133	125	161	126	129
Net imports	2,109	2,260	1,946	2,490	2,229	2,710	2,333	2,486	2,550	2,715	2,581	2,527	2,380
1976													
Crude imports	1,669	1,836	1,717	1,823	1,830	1,847	2,050	2,168	2,220	2,068	2,233	2,273	1,979
Product imports	761	978	792	808	833	871	850	991	811	645	690	899	830
Total imports	2,430	2,814	2,509	2,631	2,663	2,718	2,900	3,159	3,031	2,713	2,923	3,172	2,809
Exports	113	115	148	115	131	101	176	128	168	116	132	160	134
Net imports	2,317	2,699	2,361	2,516	2,532	2,617	2,724	3,031	2,863	2,597	2,791	3,012	2,675
1977													
Crude imports	2,140	2,020	1,894	1,774	1,871	1,920	2,042	2,097	1,897	1,849	1,927	1,983	1,951
Product imports	705	615	680	813	751	921	969	835	730	812	959	1,000	817
Total imports	2,845	2,635	2,574	2,587	2,622	2,841	3,011	2,932	2,627	2,661	2,886	2,983	2,768
Exports	78	155	128	113	152	147	117	129	129	145	128	130	129
Net imports	2,767	2,480	2,446	2,474	2,470	2,694	2,894	2,803	2,498	2,516	2,758	2,853	2,639
1978													
Crude imports	1,808	1,705	1,837	1,718	1,926	1,831							
Product imports	882	972	895	887	882	986							
Total imports	2,690	2,677	2,732	2,605	2,808	2,817							
Exports	102	128	132	124	113	100							
Net imports	2,588	2,549	2,600	2,481	2,695	2,717							

Bureau of the Mines data through Apr 1978.

Developed Countries: Exports to OPEC¹

Million US \$ (f.o.b.)

	Algeria	Ecuador	Gabon	Indonesia	Iran	Iraq	Kuwait	Libya	Nigeria	Qatar	Saudi Arabia	UAE	Venezuela	Total ²
United States														
1975	632	414	59	810	3,242	310	366	232	536	50	1,502	372	2,243	10,768
1976	487	416	46	1,036	2,776	382	472	277	770	79	2,774	425	2,628	12,568
1977	527	565	30	764	2,731	211	548	313	959	113	3,575	515	3,171	14,022
1st Qtr	116	99	9	189	626	54	152	69	204	25	777	147	669	3,136
2d Qtr	146	134	10	199	809	49	157	90	240	19	929	134	771	3,687
3d Qtr	117	175	6	171	609	65	102	88	279	41	900	125	902	3,580
4th Qtr	148	157	5	205	687	43	137	66	236	28	969	109	829	3,619
1978														
1st Qtr	76	154	13	219	867	61	110	99	273	19	949	115	808	3,763
Apr	30	44	1	58	351	36	52	30	99	8	332	40	302	1,382
Japan														
1975	261	178	14	1,848	1,853	819	367	240	585	123	1,350	421	360	8,416
1976	205	134	17	1,642	1,709	626	720	327	575	230	1,892	637	564	9,274
1977	473	246	19	1,813	1,941	878	942	280	1,018	278	2,364	852	923	12,027
1st Qtr	52	38	6	390	427	131	239	68	211	73	425	224	174	2,459
2d Qtr	145	60	5	404	417	233	242	68	225	80	567	222	240	2,906
3d Qtr	110	73	5	460	433	217	260	67	262	58	642	196	267	3,049
4th Qtr	166	75	3	559	664	297	201	77	320	67	730	210	242	3,613
1978														
1st Qtr	177	56	5	521	718	202	173	70	278	41	729	200	179	3,349
Apr	44	15	1	164	246	90	63	19	81	14	303	74	67	1,186
West Germany														
1975	611	77	23	394	2,107	1,048	203	537	652	47	566	146	372	6,783
1976	741	94	27	479	2,295	886	304	522	867	68	1,192	234	540	8,249
1977	1,079	176	34	501	2,741	778	371	650	1,293	90	1,713	367	985	10,778
1st Qtr	313	35	9	98	609	205	79	136	260	25	298	81	158	2,306
2d Qtr	235	20	13	104	672	206	83	211	293	18	472	103	257	2,687
3d Qtr	204	45	7	123	775	174	108	135	361	29	420	92	242	2,715
4th Qtr	327	76	5	176	685	193	101	168	379	18	523	91	328	3,069
1978														
1st Qtr	307	39	4	133	655	204	81	171	400	12	453	96	210	2,764
France														
1975	1,889	18	336	122	633	412	98	405	464	15	200	135	176	4,897
1976	1,478	18	393	219	655	474	227	349	534	32	340	192	171	5,080
1977	1,799	22	411	189	682	444	160	399	749	62	619	184	248	5,968
1st Qtr	364	6	121	56	154	128	36	99	185	21	114	52	56	1,392
2d Qtr	498	4	135	48	171	106	42	91	195	11	164	50	55	1,569
3d Qtr	392	4	85	46	157	94	34	92	144	14	159	39	61	1,321
4th Qtr	545	6	70	39	200	116	48	117	225	16	182	43	76	1,681
1978														
1st Qtr	371	5	62	52	298	92	42	126	221	16	188	40	60	1,573
Apr	114	2	23	12	63	37	63	46	78	6	67	21	24	555
United Kingdom														
1975	175	39	7	134	1,102	303	218	237	1,128	122	442	442	201	4,546
1976	184	41	8	144	922	273	258	242	1,388	155	710	578	230	5,130
1977	173	104	10	152	1,144	292	425	304	1,868	204	1,010	793	306	6,784
1st Qtr	39	22	2	43	274	67	79	62	407	43	210	209	60	1,516
2d Qtr	34	26	3	30	283	70	114	78	483	57	251	195	64	1,688
3d Qtr	46	29	3	31	278	74	127	76	466	50	264	206	98	1,748
4th Qtr	54	27	2	48	309	81	105	88	512	54	285	183	84	1,832
1978														
1st Qtr	71	15	5	45	340	100	154	95	535	44	346	188	92	2,028
Apr	20	6	1	14	120	36	62	33	216	15	118	70	26	737
Italy														
1975	555	31	14	86	565	261	118	1,038	299	23	320	87	321	3,717
1976	429	25	19	56	768	246	180	996	329	27	658	138	365	4,233
1977														
1st Qtr	128	7	7	12	202	54	54	277	123	9	218	46	126	1,263
2d Qtr	159	9	9	10	221	52	70	345	165	10	259	58	140	1,506
3d Qtr	164	11	4	17	221	58	63	286	142	8	257	40	137	1,408
4th Qtr	203	13	4	16	261	64	73	307	162	15	342	52	153	1,665
1978														
1st Qtr	146	14	3	11	244	52	46	285	133	6	283	41	101	1,366

Developed Countries: Exports to OPEC¹
(Continued)

Million US \$ (f.o.b.)														
	Algeria	Ecua- dor	Gabon	Indo- nesia	Iran	Iraq	Kuwait	Libya	Nigeria	Qatar	Saudi Arabia	UAE	Vene- zuela	Total *
Canada														
1975	99	21	...	66	144	66	16	22	38	1	35	5	198	712
1976	96	28	2	78	153	36	23	10	33	5	108	13	230	813
1977	165	19	1	63	138	55	35	18	31	4	101	19	291	940
1st Qtr	30	3	1	25	35	22	13	2	10	1	29	3	58	232
2d Qtr	31	5	...	11	32	12	9	6	7	1	23	5	99	240
3d Qtr	52	7	...	16	34	10	7	6	7	1	26	5	58	229
4th Qtr	52	4	...	11	37	11	6	4	7	1	23	6	76	238
1978														
1st Qtr	34	7	0	11	16	2	3	7	8	1	52	2	85	226
Apr	12	3	0	3	9	1	3	0	1	0	12	1	29	74

² Because of rounding, components may not add to totals shown.

Developed Countries: Imports From OPEC¹

Million US \$ (c.i.f.)

	Algeria	Ecuador	Gabon	Indonesia	Iran	Iraq	Kuwait	Libya	Nigeria	Qatar	Saudi Arabia	UAE	Venezuela	Total ²
United States														
1975	1,448	515	215	2,447	1,579	23	126	1,120	3,525	64	2,987	781	3,869	18,699
1976	2,344	595	206	3,277	1,631	123	41	2,406	5,251	133	5,847	1,532	3,782	27,168
1977	3,228	661	240	3,756	3,032	420	239	4,021	6,440	315	7,012	1,810	4,273	35,447
1st Qtr	736	169	62	984	712	50	74	885	1,746	45	1,783	453	1,274	8,973
2d Qtr	783	185	67	996	762	138	81	1,139	1,688	81	1,896	485	1,006	9,307
3d Qtr	830	172	71	979	890	94	38	952	1,525	98	1,768	402	1,103	8,922
4th Qtr	879	135	40	797	668	138	46	1,045	1,481	91	1,565	470	890	8,245
1978														
1st Qtr	901	214	55	876	897	42	26	911	1,182	89	1,404	550	1,003	8,150
Apr	338	51	22	363	212	17	2	333	362	43	476	149	361	2,729
Japan														
1975	36	14	12	3,430	4,979	396	2,010	280	279	28	6,132	1,774	34	19,402
1976	11	22	18	4,095	4,454	580	2,017	206	109	30	7,835	2,472	34	21,885
1977	25	30	7	5,033	4,270	740	2,502	112	21	200	8,570	2,769	50	24,329
1st Qtr	2	5	3	1,251	1,180	187	514	14	4	45	2,326	698	11	6,240
2d Qtr	7	9		1,256	1,040	199	648	28	9	46	1,880	607	12	5,741
3d Qtr	7	7	2	1,271	988	213	623	30	5	28	2,021	673	15	5,882
4th Qtr	9	9	2	1,255	1,062	141	717	40	3	81	2,343	791	12	6,462
1978														
1st Qtr	12	6	1	1,344	1,100	214	680	6	1	146	2,250	692	12	6,462
Apr	0	3	0	447	442	79	174	0	0	63	644	155	4	2,011
West Germany														
1975	1,025	63	107	154	1,469	127	226	1,391	961	125	1,623	735	230	8,236
1976	1,146	69	70	214	1,988	155	182	2,103	974	125	1,799	693	209	9,727
1977	1,175	78	61	328	1,868	126	159	2,162	1,103	103	1,924	913	119	10,119
1st Qtr	329	21	17	98	497	39	45	624	232	17	436	197	30	2,582
2d Qtr	246	17	18	68	468	31	40	502	284	34	492	205	28	2,433
3d Qtr	303	16	6	77	420	32	21	541	267	31	542	252	28	2,536
4th Qtr	297	24	20	85	483	24	53	495	320	21	454	259	33	2,568
1978														
1st Qtr	307	25	25	75	530	20	46	464	217	41	311	213	44	2,316
France														
1975	741	15	245	55	1,265	1,082	619	189	849	207	2,986	1,096	85	9,435
1976	694	14	294	97	1,440	1,595	410	321	751	326	4,087	1,238	95	11,360
1977	789	48	370	157	1,099	1,831	353	309	945	316	4,315	1,191	98	11,821
1st Qtr	197	6	88	31	449	471	126	66	209	100	1,034	264	20	3,057
2d Qtr	204	14	102	40	299	349	75	51	249	63	907	276	19	2,648
3d Qtr	200	17	105	41	132	470	75	86	208	58	1,146	304	31	2,872
4th Qtr	188	11	75	45	219	541	77	106	279	95	1,228	347	28	3,237
1978														
1st Qtr	206	12	75	48	312	565	64	99	232	108	1,126	186	22	3,054
Apr	92	3	28	8	85	142	29	42	78	19	348	121	6	1,001
United Kingdom														
1975	190	5	10	33	1,553	225	936	289	687	347	1,917	358	366	6,914
1976	147	4	16	41	1,880	492	1,043	296	575	459	1,762	363	216	7,290
1977	87	8	5	50	1,360	581	944	246	382	174	1,903	454	117	6,311
1st Qtr	27	1	2	9	482	139	224	30	159	99	499	92	20	1,783
2d Qtr	21	2	1	11	359	146	283	81	69	33	559	102	35	1,701
3d Qtr	24	3	1	16	256	141	211	86	75	25	424	142	31	1,436
4th Qtr	15	2	1	14	263	155	226	49	79	17	421	118	31	1,391
1978														
1st Qtr	10	2	4	14	335	202	359	54	123	13	514	133	35	1,797
Apr	1	1	0	5	40	41	82	41	51	0	69	48	12	391

Developed Countries: Imports From OPEC

(Continued)

													Million US \$ (c.i.f.)	
	Algeria	Ecua- dor	Gabon	Indo- nesia	Iran	Iraq	Kuwait	Libya	Nigeria	Qatar	Saudi Arabia	UAE	Vene- zuela	Total *
Italy														
1975	403	34	44	54	1,140	1,664	361	1,240	68	129	2,351	201	161	7,846
1976	308	26	16	119	1,270	1,354	208	1,645	58	145	2,512	248	211	8,120
1977														
1st Qtr	41	8	13	34	343	373	169	357	31	26	649	97	38	2,177
2d Qtr	45	13	7	35	365	452	174	409	37	34	837	43	48	2,498
3d Qtr	51	9	5	25	392	224	128	337	15	11	794	59	55	2,105
4th Qtr	59	8	2	43	392	343	232	404	22	31	628	52	34	2,250
1978														
1st Qtr	71	10	7	47	346	456	182	288	14	1	647	70	46	2,184
Canada														
1975	2	22	28	15	819	144	120	39	84	7	809	153	1,189	3,430
1976	73	35	67	21	745	149	25	117	175	...	569	69	1,445	3,485
1977	49	68	19	25	552	114	20	...	39	...	721	14	1,426	3,047
1st Qtr	10	24	16	4	140	25	15	...	210	...	373	816
2d Qtr	12	17	...	7	145	184	...	374	739
3d Qtr	22	11	3	9	148	41	18	...	194	7	365	818
4th Qtr	5	16	...	5	119	48	20	...	6	...	133	7	314	673
1978														
1st Qtr	7	23	21	7	156	39	0	0	0	0	189	0	333	773
Apr	0	13	0	2	41	10	0	0	0	0	31	0	95	191

* Because of rounding, components may not add to totals shown.

Thousand b/d

		1972	1973	1974	1975	1976	1977	1978
United States ¹	Annual							
	Average	16,367	17,308	16,653	16,322	17,461	18,418	
	Jan	16,735	18,713	17,286	18,004	18,598	20,481	19,691
	Feb	17,861	19,094	17,366	17,084	17,429	20,427	20,874
	Mar	16,870	17,216	16,104	16,315	17,299	18,056	19,627
	Apr	15,529	15,921	15,929	16,048	16,671	17,570	17,744
	May	14,801	16,626	15,726	15,155	15,977	16,960	(est) 18,598
	Jun	15,615	16,481	16,117	15,610	16,836	18,048	(est) 17,915
	Jul	14,821	16,372	16,349	15,740	16,613	17,549	(est) 18,292
	Aug	15,936	17,499	16,550	15,806	16,642	18,009	(est) 18,868
	Sep	15,489	16,656	16,024	15,768	16,825	17,733	
	Oct	16,455	17,202	17,050	16,377	17,052	17,831	
	Nov	17,610	18,492	17,351	15,777	18,847	18,440	
	Dec	18,738	17,538	18,013	18,185	20,560	20,046	
Canada	Annual							
	Average	1,511	1,597	1,630	1,595	1,647	1,666	
	Jan	1,536	1,667	1,823	1,691	1,785	1,793	1,797
	Feb	1,793	1,747	1,863	1,872	1,754	1,912	1,976
	Mar	1,612	1,584	1,659	1,558	1,747	1,660	1,730
	Apr	1,367	1,431	1,560	1,592	1,508	1,523	1,564
	May	1,374	1,486	1,577	1,471	1,512	1,520	1,532
	Jun	1,334	1,474	1,455	1,550	1,551	1,598	(est) 1,625
	Jul	1,294	1,490	1,534	1,493	1,514	1,499	
	Aug	1,394	1,557	1,463	1,449	1,575	1,689	
	Sep	1,402	1,427	1,415	1,469	1,512	1,522	
	Oct	1,577	1,680	1,680	1,555	1,554	1,628	
	Nov	1,685	1,801	1,714	1,577	1,820	1,720	
	Dec	1,782	1,828	1,831	1,880	2,000	1,943	
Japan	Annual							
	Average	4,311	5,000	4,872	4,568	4,786	5,015	
	Jan	N.A.	5,036	5,103	4,729	4,941	5,433	5,245
	Feb	N.A.	5,352	5,664	5,191	5,246	6,025	6,180
	Mar	N.A.	5,306	5,407	4,918	5,165	5,539	5,622
	Apr	N.A.	4,737	4,706	4,202	4,526	4,714	4,805
	May	N.A.	4,597	4,568	4,041	4,218	4,314	4,432
	Jun	N.A.	4,776	4,520	4,135	4,429	4,484	(est) 4,581
	Jul	N.A.	4,586	4,385	4,265	4,416	4,716	
	Aug	N.A.	4,684	4,576	4,234	4,461	4,709	
	Sep	N.A.	4,778	4,720	4,543	4,517	4,742	
	Oct	N.A.	5,093	4,614	4,409	4,523	4,664	
	Nov	N.A.	5,559	4,925	4,747	5,160	5,093	
	Dec	N.A.	5,526	5,330	5,447	5,846	5,800	
Austria	Annual							
	Average	203	227	203	199	215	206	
	Jan	189	220	236	183	207	200	216
	Feb	221	225	220	190	208	208	235
	Mar	212	224	160	172	209	182	218
	Apr	183	204	169	184	156	197	181
	May	174	210	172	156	169	166	174
	Jun	181	200	169	186	189	208	
	Jul	179	221	214	210	219	192	
	Aug	187	222	218	223	229	213	
	Sep	213	227	222	232	246	221	
	Oct	227	253	243	226	233	202	
	Nov	246	276	215	201	252	236	
	Dec	230	234	203	229	261	245	
Belgium/Luxembourg	Annual							
	Average	485	505	440	416	449	442	
	Jan	535	543	512	550	498	552	515
	Feb	591	589	528	558	547	507	592
	Mar	546	570	392	410	469	517	520
	Apr	470	565	383	465	460	483	

Selected ABC Countries: Trends in Arms Imports
(Continued)

		Thousand b/d						
		1972	1973	1974	1975	1976	1977	1978
Belgium/Luxembourg (Continued)	May	454	483	419	363	357	397	477
	Jun	464	463	376	366	383	414	387
	Jul	346	359	339	288	308	253	
	Aug	367	389	352	331	361	335	
	Sep	479	465	478	372	425	428	
	Oct	484	556	534	442	424	414	
	Nov	563	558	427	439	532	504	
	Dec	530	503	542	508	628	505	
	Annual							
Denmark	Average				301	307	309	
	Jan	N.A.	N.A.	N.A.	332	358	370	338
	Feb	N.A.	N.A.	N.A.	380	398	405	407
	Mar	N.A.	N.A.	N.A.	317	367	362	358
	Apr	N.A.	N.A.	N.A.	354	307	340	310
	May	N.A.	N.A.	N.A.	258	242	241	272
	Jun	N.A.	N.A.	N.A.	257	250	236	236
	Jul	N.A.	N.A.	N.A.	218	184	192	
	Aug	N.A.	N.A.	N.A.	264	261	293	
	Sep	N.A.	N.A.	N.A.	262	274	326	
	Oct	N.A.	N.A.	N.A.	302	280	246	
	Nov	N.A.	N.A.	N.A.	324	356	323	
	Dec	N.A.	N.A.	N.A.	353	414	376	
	Annual							
	Average	1,985	2,219	2,094	1,925	2,075	1,973	
France	Jan	2,276	2,743	2,523	2,190	2,436	2,519	2,646
	Feb	2,450	2,687	2,389	2,243	2,486	2,386	2,601
	Mar	2,100	2,528	2,249	1,952	2,381	2,109	2,237
	Apr	1,848	2,296	1,970	2,202	2,100	2,043	2,045
	May	1,743	1,890	1,915	1,640	1,796	1,846	2,134
	Jun	1,597	1,685	2,103	1,642	1,593	1,715	1,678
	Jul	1,444	1,566	1,703	1,491	1,629	1,349	
	Aug	1,441	1,495	1,506	1,300	1,668	1,390	
	Sep	1,950	1,932	1,996	1,785	1,974	1,783	
	Oct	2,106	2,482	2,045	1,917	1,904	1,882	
	Nov	2,332	2,593	2,260	2,077	2,236	2,181	
	Dec	2,574	2,768	2,492	2,658	2,712	2,512	
	Annual							
Italy ²	Average	1,435	1,525	1,521	1,468	1,503	1,476	
	Jan	1,720	1,781	1,755	1,792	1,775	1,696	1,755
	Feb	1,756	1,866	1,760	1,767	1,743	1,823	1,859
	Mar	1,450	1,710	1,579	1,558	1,641	1,573	1,570
	Apr	1,169	1,420	1,421	1,530	1,423	1,326	1,328
	May	1,138	1,285	1,349	1,174	1,253	1,268	1,285
	Jun	1,101	1,255	1,314	1,289	1,236	1,340	1,347
	Jul	1,175	1,303	1,368	1,234	1,355	1,251	
	Aug	1,129	1,255	1,287	1,105	1,372	1,140	
	Sep	1,450	1,462	1,527	1,465	1,604	1,502	
	Oct	1,650	1,610	1,569	1,679	1,464	1,405	
	Nov	1,702	1,551	1,580	1,448	1,393	1,605	
	Dec	1,899	1,698	1,753	1,600	1,779	1,817	
	Annual							
Netherlands	Average	496	507	444	412	487	457	
	Jan	509	584	468	399	480	494	390
	Feb	591	586	522	430	542	502	
	Mar	557	542	438	379	543	494	
	Apr	512	541	530	474	443	424	
	May	453	475	432	390	453	393	
	Jun	430	436	427	403	462	456	
	Jul	374	408	415	354	426	388	
	Aug	435	437	414	364	446	414	
	Sep	440	485	440	412	493	447	

		Thousand b/d						
		1972	1973	1974	1975	1976	1977	1978
Netherlands (Continued)	Oct	515	594	472	440	469	459	
	Nov	581	503	440	419	517	511	
	Dec	567	505	433	484	576	504	
	Annual Average	N.A.	N.A.	143	150	163	170	
Norway	Jan	N.A.	N.A.	155	142	161	177	171
	Feb	N.A.	N.A.	154	171	180	202	193
	Mar	N.A.	N.A.	124	137	181	189	171
	Apr	N.A.	N.A.	126	149	145	162	155
	May	N.A.	N.A.	118	145	147	150	160
	Jun	N.A.	N.A.	141	130	153	159	
	Jul	N.A.	N.A.	113	120	130	131	
	Aug	N.A.	N.A.	125	140	146	156	
	Sep	N.A.	N.A.	151	161	168	189	
	Oct	N.A.	N.A.	161	162	167	161	
	Nov	N.A.	N.A.	174	181	175	179	
	Dec	N.A.	N.A.	180	162	197	192	
	Annual Average	471	581	626	667	744	693	
Spain	Jan	483	539	610	720	758	740	747
	Feb	508	568	639	682	785	727	771
	Mar	461	564	571	625	769	660	719
	Apr	447	537	595	688	742	634	685
	May	444	523	620	622	685	670	665
	Jun	472	530	608	610	714	672	673
	Jul	457	466	630	624	755	677	
	Aug	462	667	617	584	685	612	
	Sep	477	576	636	667	734	700	
	Oct	459	669	677	713	742	682	
	Nov	500	646	653	706	780	743	
	Dec	515	681	650	735	782	804	
	Annual Average	N.A.	533	490	478	529	512	
Sweden	Jan	N.A.	603	521	511	565	616	481
	Feb	N.A.	555	415	547	530	600	569
	Mar	N.A.	540	427	479	539	545	508
	Apr	N.A.	506	441	532	450	499	466
	May	N.A.	524	495	392	395	466	419
	Jun	N.A.	420	464	511	410	410	
	Jul	N.A.	387	423	362	382	388	
	Aug	N.A.	455	463	459	483	456	
	Sep	N.A.	492	516	503	571	497	
	Oct	N.A.	656	553	462	585	492	
	Nov	N.A.	645	568	446	697	546	
	Dec	N.A.	618	581	538	740	590	
	Annual Average	1,954	1,974	1,857	1,633	1,627	1,665	
United Kingdom	Jan	2,121	2,315	2,045	1,981	1,679	1,860	1,852
	Feb	2,401	2,313	2,127	1,907	1,865	1,874	1,929
	Mar	2,249	2,271	2,133	1,731	1,879	1,848	1,870
	Apr	2,027	2,038	1,899	1,826	1,716	1,698	1,819
	May	1,851	1,939	1,704	1,482	1,417	1,571	1,644
	Jun	1,745	1,697	1,545	1,416	1,416	1,477	(est) 1,565
	Jul	1,519	1,637	1,531	1,322	1,346	1,321	
	Aug	1,527	1,615	1,513	1,208	1,296	1,371	
	Sep	1,703	1,727	1,663	1,501	1,501	1,580	
	Oct	1,959	2,150	2,049	1,707	1,568	1,570	
	Nov	2,194	2,258	2,108	1,723	1,778	1,925	
	Dec	2,132	1,906	1,983	1,821	1,899	1,903	

Selected OECD Countries: Trends in Inland Oil Consumption
(Continued)

		Thousand b/d					
		1972	1973	1974	1975	1976	1977
West Germany	Annual						
	Average	2,521	2,693	2,408	2,319	2,507	2,478
	Jan	2,545	2,868	2,556	2,183	2,464	2,393
	Feb	2,803	2,850	1,969	2,455	2,497	2,446
	Mar	2,525	2,707	2,173	2,234	2,747	2,523
	Apr	2,347	2,809	2,539	2,431	2,339	2,431
	May	2,335	2,546	2,403	2,253	2,320	2,364
	Jun	2,632	2,674	2,414	2,106	2,393	2,475
	Jul	2,188	2,196	2,548	2,319	2,624	2,382
	Aug	2,444	2,738	2,476	2,360	2,515	2,469
	Sep	2,487	2,618	2,473	2,309	2,521	2,567
	Oct	2,522	2,969	2,613	2,328	2,391	2,324
	Nov	2,667	2,883	2,432	2,361	2,700	2,649
	Dec	2,783	2,481	2,261	2,502	2,571	2,719
Australia	Annual						
	Average	483	510
	Jan	411	447
	Feb	459	491
	Mar	463	476
	Apr	467	462
	May	479	547
	Jun	526	575
	Jul	503	502
	Aug	516	550
	Sep	530	583
	Oct	459	470
	Nov	484	512
	Dec	510	511

¹ Including bunkers, refinery fuel, and losses.² Principal products only.

Selected OECD Countries: Oil Stocks

		Thousand Barrels, End of Month								
		United States	Japan	Canada	Belgium	Denmark	France	Ireland	Italy	
1973	Sep	1,057,911 ¹	300,000	113,193	N.A.	N.A.	N.A.	N.A.	N.A.	
1974	Mar	995,365 ¹	257,000	116,060	N.A.	N.A.	N.A.	N.A.	N.A.	
	Jun	1,102,467 ¹	325,000	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
	Sep	1,156,105 ¹	359,000	148,305	N.A.	N.A.	N.A.	N.A.	N.A.	
	Dec	1,115,916 ¹	334,000	142,233	N.A.	N.A.	N.A.	N.A.	N.A.	
1975	Mar	1,076,360	296,000	133,805	45,968	34,770	N.A.	N.A.	N.A.	
	Jun	1,071,150	314,000	140,617	44,983	34,887	N.A.	7,636	136,890	
	Sep	1,147,338	330,000	147,939	51,644	44,333	N.A.	7,899	142,335	
	Dec	1,111,810	325,000	138,462	51,538	43,836	254,296	7,716	152,490	
1976 ²	Mar	1,060,489	290,000	121,490	42,340	36,281	222,051	6,293	142,153	
	Jun	1,108,703	325,000	132,174	47,187	35,033	191,245	5,913	117,260	
	Sep	1,191,450	365,000	138,211	48,165	42,033	202,684	6,563	132,882	
	Dec	1,111,810	359,000	125,934	40,077	41,296	239,265	6,570	141,496	
1977	Mar	1,086,822	327,000	125,757	41,508	36,354	231,133	6,008	140,773	
	Jun	1,195,088	362,000	138,808	49,589	39,456	209,868	5,840	135,692	
	Sep	1,303,369	376,000	142,660	57,371	46,340	201,130	7,066	162,381	
	Dec	1,311,217	383,000	143,545	51,618	46,107	225,592	6,979	163,958	
1978	Mar	1,167,740	360,000	128,476	N.A.	39,259	234,629	7,023	159,972	
	Apr	1,174,192	361,000	125,454	N.A.	N.A.	195,640	6,869	132,218	
	May	1,156,400	413,000	120,896	N.A.	N.A.	N.A.	N.A.	N.A.	
	Jun	1,201,800	364,000	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
	Jul	1,161,900	352,000	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
	Aug	1,159,300	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	
		Luxem- bourg	Nether- lands	Norway	Portugal	Spain	Switzer- land	Turkey	United Kingdom	West Germany
1973	Sep	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1974	Mar	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Jun	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Sep	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Dec	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1975	Mar	569	82,724	12,534	N.A.	61,393	27,638	9,636	N.A.	N.A.
	Jun	504	82,738	11,921	N.A.	58,845	28,368	10,957	N.A.	148,832
	Sep	548	83,614	13,563	6,541	61,743	30,332	11,271	N.A.	151,424
	Dec	511	80,059	13,702	5,876	59,181	30,565	6,979	N.A.	170,083
1976	Mar	438	71,336	16,958	8,556	57,874	28,360	10,424	145,555	184,004
	Jun	584	71,744	18,980	7,680	66,211	29,375	10,103	156,417	165,783
	Sep	584	84,315	17,162	7,008	68,240	30,580	9,870	163,323	172,244
	Dec	606	80,190	17,454	9,176	66,897	32,230	11,680	163,111	190,858
1977	Mar	650	75,438	14,133	8,838	77,760	32,018	8,475	146,518	204,787
	Jun	620	83,388	15,936	9,629	81,694	34,500	14,089	155,884	203,342
	Sep	606	86,819	17,009	9,132	77,701	35,222	10,614	157,768	201,677
	Dec	650	79,935	18,805	11,147	77,833	35,573	N.A.	145,985	216,971
1978	Mar	620	74,387	15,651	N.A.	74,175	34,522	N.A.	135,955	222,110
										203,743

¹ Estimated.² As of January 1977, US Bureau of Mines changed the reporting of crude oil stocks to include foreign crude oil not yet received at refineries. Figures beginning in 1976 have been computed on the new basis.

Note: West European stock data have been revised to reflect a more comprehensive coverage of oil statistics by the OECD.

Estimated OECD Oil Consumption ¹
Million b/d

	1st Qtr	2d Qtr	3d Qtr	4th Qtr
1973	43.2	37.6	36.8	42.4
1974	39.6	35.9	36.3	39.0
1975	37.9	34.2	34.2	37.6
1976	39.9	35.7	36.2	41.1
1977	42.5	37.1	37.1	40.7
1978	43.8			

¹ Excluding Australia and New Zealand, and including US refinery gain.

Western Europe: Oil Spot Market Prices

US \$ per Barrel

	F.O.B. Rotterdam ¹				F.O.B. Italy ¹			
	Heavy Fuel Oil		Gas Oil	Gasoline (Premium)	Heavy Fuel Oil		Gas Oil	Gasoline (Premium)
	1% Sulfur	3.5% Sulfur			1% Sulfur	3.5% Sulfur		
1974								
1st Qtr	14.02	12.77	15.13	19.76	13.87	12.88	13.95	19.26
2d Qtr	10.15	9.70	11.77	19.61	9.90	9.35	10.93	18.77
3d Qtr	9.87	9.24	12.34	13.92	9.61	9.23	11.96	13.15
4th Qtr	11.09	10.11	12.33	13.26	10.29	9.96	11.68	12.08
1975								
1st Qtr	11.97	10.49	11.18	14.20	10.57	10.24	11.10	13.23
2d Qtr	10.61	9.68	12.90	15.95	10.40	10.16	12.24	15.28
3d Qtr	9.33	8.62	14.40	15.02	8.81	8.30	13.87	14.64
4th Qtr	9.53	8.33	14.84	15.85	8.99	8.38	14.56	15.24
1976								
1st Qtr	10.39	9.84	13.79	17.10	9.95	9.65	13.59	16.48
2d Qtr	10.40	9.56	14.08	19.24	10.18	9.73	13.90	18.30
3d Qtr	11.06	9.99	14.40	18.02	10.34	10.06	14.19	17.37
4th Qtr	12.07	10.76	14.57	17.44	11.64	10.85	14.48	16.83
1977								
1st Qtr	13.25	11.71	15.80	16.82	13.53	12.06	15.89	16.56
2d Qtr	12.51	10.77	15.74	17.26	12.25	10.88	15.71	16.48
3d Qtr	12.47	11.33	15.67	16.60	12.42	11.29	15.70	15.87
4th Qtr	12.76	11.68	15.94	16.44	12.21	11.63	15.71	15.44
1978								
1st Qtr	12.89	11.44	16.15	16.87	12.05	11.38	16.18	15.73
2d Qtr	12.72	11.07	16.44	17.95	11.93	10.77	16.33	16.99
Jul	12.27	10.92	16.35	19.08	11.44	10.66	16.44	18.29
Aug	11.52	10.79	16.36	21.60	11.12	10.06	16.36	19.96

¹ Barge lot—minimum 3,500 barrels.

² Cargo lot—minimum 130,000 barrels.

Selected Developed Countries: Retail Petroleum Product Prices

US Cents per US Gallon

	Regular Gasoline		Premium Gasoline		Diesel Fuel	
	Price ¹	Tax	Price ¹	Tax	Price ¹	Tax
United States						
1973 Oct	40	12	44	12	23	12
1974 Jun	55	12	59	12	36	12
1975 Jun	57	12	61	12	51	12
1976 Jun	59	12	64	12	52	12
1977 Jun	63	12	69	12	57	12
1977 Dec	63	12	69	12	57	12
1978 Jan	62	12	68	12	NA	NA
Japan						
1973 Oct	102	46	116	46	53	23
1974 Jun	159	55	181	55	82	23
1975 Jun	181	55	206	55	95	23
1976 Jun	183	55	208	55	101	23
1977 Jun	194	68	221	68	109	30
1977 Dec	189	68	215	68	106	30
1978 Jan	186	68	212	68	106	30
West Germany						
1973 Oct	133	96	148	98	134	91
1974 Jun	163	99	177	100	166	94
1975 Jun	157	100	170	100	162	91
1976 Jun	172	100	183	101	168	94
1977 Jun	168	100	178	102	167	94
1977 Dec	167	100	177	102	167	94
1978 Jan	167	100	177	102	167	94
France ²						
1973 Oct	100	68	108	72	69	42
1974 Jun	129	72	140	77	83	44
1975 Jun	135	77	147	81	90	48
1976 Jun	146	80	157	85	101	50
1977 Jun	175	106	190	113	115	57
1977 Dec	175	106	190	113	115	57
1978 Jan	175	106	190	113	115	57
United Kingdom						
1973 Oct	57	36	60	36	57	36
1974 Jun	86	44	89	44	88	44
1975 Jun	113	44	117	44	88	44
1976 Jun	120	60	124	61	99	44
1977 Jun	134	72	137	72	136	67
1977 Dec	121	62	124	62	136	67
1978 Jan	121	62	124	62	136	67
Italy ²						
1973 Oct	78	59	82	61	42	27
1974 Jun	110	70	116	73	60	28
1975 Jun	128	87	134	90	63	29
1976 Jun	172	111	178	115	73	30
1977 Jun	214	154	223	159	69	20
1977 Dec	214	154	223	159	69	20
1978 Jan	214	154	223	159	73	20

NOTE: Converted at 1 March 1978 exchange rates.

¹ Including tax.² Government price ceilings in effect.

OPEC Countries: Crude Oil Prices

	US \$ per Barrel									
	2d Qtr 1977		3d Qtr 1977		4th Qtr 1977		1st Qtr 1978		2d Qtr	
	Operating Company Cost ¹	Direct Sales Price ²	Operating Company Cost	Direct Sales Price	Operating Company Cost	Direct Sales Price	Operating Company Cost	Direct Sales Price	Operating Company Cost	Direct Sales Price
OPEC average ³	12.46	12.76	12.70	13.01	12.69	12.99	12.67	12.96	12.65	12.94
Saudi Arabia										
Light 34° API 1.70% sulfur	11.84	12.09	12.45	12.70	12.45	12.70	12.50	12.70	12.50	12.70
Berri 39° API 1.16% sulfur	12.22	12.48	12.95	13.22	12.95	13.22	13.02	13.22	13.02	13.22
Heavy 27° API 2.85% sulfur	11.13	11.37	11.77	12.02	11.77	12.02	11.82	12.02	11.82	12.02
Medium 31° API 2.40% sulfur	11.44	11.69	12.07	12.32	12.07	12.32	12.12	12.32	12.12	12.32
Iran										
Light 34° API 1.35% sulfur	12.59	12.81	12.59	12.81	12.59	12.81	12.59	12.81	12.59	12.81
Heavy 31° API 1.60% sulfur	12.27	12.49	12.27	12.49	12.27	12.49	12.27	12.49	12.27	12.49
Iraq 35° API 1.95% sulfur	12.60	12.60	12.60	12.60	12.60	12.60	12.60	12.60	12.60	12.60
Nigeria 34° API 0.16% sulfur	14.15	14.52	14.15	14.52	14.15	14.52	13.86	14.22	13.65	14.03
UAE 39° API 0.75% sulfur	12.08	12.50	12.73	13.26	12.73	13.26	12.73	13.26	12.73	13.26
Kuwait 31° API 2.50% sulfur ⁴	12.22	12.37	12.22	12.37	12.22	12.37	12.12	12.27	12.07	12.22
Libya 40° API 0.22% sulfur	13.68	13.92	14.01	14.20	14.01	14.20	13.75	14.00	13.64	13.85
Venezuela 26° API 1.52% sulfur	12.52	12.72	12.52	12.72	12.62	12.82	12.62	12.82	12.52	12.72
Indonesia 35° API 0.09% sulfur	12.15	13.55	12.15	13.55	12.15	13.55	12.25	13.55	12.25	13.55
Algeria 42° API 0.10% sulfur	14.29	14.29	14.45	14.45	14.45	14.45	14.25	14.25	14.10	14.10
Qatar 40° API 1.17% sulfur	12.88	13.19	12.88	13.19	12.88	13.19	12.88	13.19	12.88	13.19
Gabon 29° API 1.26% sulfur	11.79	12.80	11.79	12.80	11.79	12.80	11.79	12.80	11.79	12.80
Ecuador 28° API 0.93% sulfur	11.68	13.00	11.68	13.00	11.68	12.60	11.32	12.40	11.32	12.40

¹ Total average f.o.b. costs paid by present or former concessionaires.

² F.o.b. prices set by the government for direct sales and, in most cases, for the producing company buy-back oil.

³ Weighted by the volume of production.

⁴ A 10-cent-per-barrel discount will be offered to buyers provided they meet their minimum contractual lifting volumes for second half 1977. The discount will be credited to the lifting companies' accounts beginning in first quarter 1978.

USSR: Crude Oil Production ¹

	Million b/d
1970	7.06
1971	7.54
1972	8.01
1973	8.58
1974	9.18
1975	9.82
1976	10.39
1977	10.92
1978	
1st Qtr	11.19
2d Qtr	11.35
Jul	11.44

¹ Including natural gas liquids.

USSR: Regional Production of Crude Oil ¹

	Million b/d							
	1970	1971	1972	1973	1974	1975	1976 ²	1977 ²
Total	7.06	7.54	8.01	8.58	9.18	9.82	10.39	10.92
Urals-Volga	4.17	4.23	4.31	4.40	4.44	4.50	4.45	4.34
West Siberia	0.63	0.90	1.25	1.75	2.33	2.96	3.63	4.34
Central Asia	0.58	0.66	0.71	0.76	0.79	0.81	0.80	0.78
Azerbaijan SSR	0.40	0.38	0.37	0.36	0.36	0.34	0.33	0.32
North Caucasus	0.68	0.72	0.69	0.59	0.53	0.47	0.42	0.38
Ukrainian SSR	0.27	0.28	0.28	0.27	0.25	0.23	0.23	0.21
Komi ASSR	0.11	0.12	0.13	0.13	0.14	0.14	0.18	0.22
Belorussia SSR	0.08	0.11	0.12	0.14	0.16	0.16	0.17	0.18
Far East	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04
Other	0.09	0.09	0.10	0.13	0.13	0.17	0.14	0.11

¹ Including natural gas liquids.

² Preliminary.

USSR: Imports of Oil

	Thousand b/d							
	1970	1971	1972	1973	1974	1975	1976	1977 ¹
Total	90	130	180	290	110	150	128	150
Middle East								
Egypt	40	40	20	4	3	5	3	
Iraq	80	220	78	108	116	
Other	50	90	80	66	29	37	9	

¹ Preliminary.

USSR: Exports of Oil

Thousand b/d

	1970	1971	1972	1973	1974	1975	1976	1977 ¹
Total	1,920	2,110	2,140	2,380	2,340	2,600	2,970	3,200
Other Communist countries	1,010	1,110	1,200	1,350	1,440	1,550	1,880	1,800
Eastern Europe	805	895	975	1,100	1,180	1,260	1,370	
Asia	30	25	20	20	30	40	40	
Cuba	120	130	140	150	155	160	175	
Yugoslavia	55	60	65	80	75	90	95	
Free World countries	910	1,000	940	1,030	900	1,050	1,290	1,400
North America	5	...	10	30	20	15	23	
Canada	3	5	2	
United States	5	...	10	30	17	10	21	
Western Europe	760	830	815	880	750	880	1,102	
Finland	155	170	170	200	180	175	190	
France	50	90	60	105	30	70	117	
Italy	205	180	170	175	135	135	240	
Netherlands	30	35	50	65	60	60	53	
Sweden	95	90	90	65	60	70	55	
West Germany	125	120	125	115	125	150	145	
Other	100	145	150	155	160	220	302	
Near and Middle East	60	60	50	30	30	45	56	
Egypt	30	32	30	7	4	5	5	
Greece	20	20	18	16	20	38	40	
Other	10	8	2	7	6	2	11	
Africa	25	30	35	35	23	20	23	
Ghana	10	12	13	12	6	3	5	
Morocco	14	17	19	19	13	13	13	
Other	1	1	3	4	4	4	5	
Asia	60	80	30	55	52	60	65	
India	5	10	8	10	20	25	22	
Japan	54	66	20	41	25	26	35	
Other	1	4	2	4	7	9	8	
Latin America	25	30	21	
Brazil	25	30	21	

¹ Preliminary.

USSR: Oil Consumption

Million b/d

1970	5.15
1971	5.46
1972	5.92
1973	6.33
1974	6.79
1975	7.20
1976	7.55
1977 ¹	7.9

¹ Preliminary.

USSR: Natural Gas Production ¹
Billion ft³/d

1970	19.2
1971	20.5
1972	21.4
1973	22.9
1974	25.2
1975	28.0
1976	30.9
1977	33.5
1978	
1st Qtr	36.5
2d Qtr	35.1
Jul	34.3

¹ To convert to m³/d multiply data by 0.028316847.

USSR: Regional Production of Natural Gas ¹

	Billion ft ³ /d							
	1970	1971	1972	1973	1974	1975	1976 ²	1977 ³
Total	19.2	20.5	21.4	22.9	25.2	28.0	30.9	33.5
Central Asia	4.7	5.2	5.7	6.9	8.0	9.2	10.2	10.6
Ukrainian SSR	5.9	6.3	6.5	6.6	6.6	6.6	6.5	6.3
North Caucasus	3.7	3.5	2.9	2.5	2.4	2.3	2.3	2.2
West Siberia	0.9	0.9	1.1	1.6	2.4	3.6	4.3	6.9
Komi ASSR	0.6	1.0	1.3	1.3	1.6	1.8	2.0	2.0
Azerbaydzhan SSR	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2
Urals-Volga and other produc- ing regions in the RSFSR	2.8	3.1	3.2	3.1	3.3	3.5	4.5	4.3

¹ To convert to m³/d multiply data by 0.028316847.

² Revised.

³ Preliminary.

USSR: Natural Gas Trade ¹

	Billion ft ³ /d							
	1970	1971	1972	1973	1974	1975	1976	1977 ²
Exports	0.3	0.4	0.5	0.7	1.4	1.9	2.5	2.9
Eastern Europe	0.2	0.3	0.3	0.5	0.8	1.1	1.5	1.5
Bulgaria	Negl.	0.1	0.2	0.3
Czechoslovakia	0.1	0.2	0.2	0.2	0.3	0.4	0.4	0.4
East Germany	0.1	0.3	0.3	0.3	0.4
Hungary	0.1	0.1	0.1
Poland	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3
Western Europe	0.1	0.1	0.2	0.2	0.5	0.8	1.2	1.4
Austria	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.2
Finland	Negl.	0.1	0.1	0.1
France	0.1	0.1
Italy	0.1	0.2	0.4	0.5
West Germany	Negl.	0.2	0.3	0.4	0.5
Imports	0.3	0.8	1.1	1.1	1.2	1.2	1.1	1.3
Afghanistan	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.3
Iran	0.1	0.5	0.8	0.8	0.9	0.9	0.9	1.0

¹ To convert to m³/d multiply data by 0.028316847.

² Estimated.

USSR: Consumption of Natural Gas ¹

	Billion ft ³ /d
1970	19.2
1971	20.9
1972	21.9
1973	23.3
1974	25.0
1975	27.3
1976	29.6
1977	31.9

¹ To convert to m³/d multiply data by 0.028316847.

Eastern Europe: Oil Production and Consumption

	1970	1971	1972	1973	1974	1975	1976	1977 ²
Production	384	393	404	410	417	423	430	431
Bulgaria	7	6	5	4	3	2	2	2
Czechoslovakia	4	4	4	3	3	3	3	2
East Germany	1	1	1	1	1	1	1	1
Hungary	39	39	40	40	40	40	43	44
Poland	8	8	7	8	11	11	9	9
Romania	268	276	283	286	290	292	294	293
Yugoslavia	57	59	64	68	69	74	78	80
Consumption ¹	1,225	1,374	1,509	1,787	1,777	1,884	2,019	2,145
Bulgaria	184	212	222	248	268	248	256	265
Czechoslovakia	208	236	256	300	314	327	354	374
East Germany	182	202	259	277	269	282	311	330
Hungary	127	144	162	179	188	218	227	233
Poland	172	192	215	268	262	311	323	343
Romania	198	217	229	261	241	259	293	340
Yugoslavia	155	169	164	254	235	239	255	260

¹ Crude oil equivalent. Because of rounding, components may not add to totals shown.

² Estimated.

	1970	1971	1972	1973	1974	1975	1976 ¹
Crude Oil ²							
Imports	879	1,013	1,171	1,401	1,421	1,551	1,732
USSR	679	800	921	1,044	1,108	1,242	1,331
OPEC	102	117	107	233	295	260	326
Iraq	40	53	28	53	93	125	112
Iran	62	64	71	94	63	72	14
Algeria	6	...	5	14	7
Libya	...	Negl.	2	...	4	9	13
Kuwait	4	...	15	...
Other	82 ³	130 ³	25 ³	179 ³
Non-OPEC	98	96	143	124	18	49	75
Belgium	6	4	19
West Germany	6	4	...	11
Netherlands	2	11	1
Syria	Negl.	...	7	3	Negl.
France	...	7	1
Other	98	89	135	115	6	25	44
Petroleum products							
Imports	166	153	159	177	180	160	164
Bulgaria	58	51	47	47	48	34	37
Czechoslovakia	22	20	21	25	27	21	25
East Germany	2	4	11	2	2	3	3
Hungary	19	16	14	20	21	19	21
Poland	48	45	47	61	60	63	64
Yugoslavia	17	17	19	22	22	20	14
Exports	201	182	220	204	236	243	298
Czechoslovakia	15	18	20	13	10	15	17
East Germany	26	20	47	48	58	57	55
Hungary	18	10	13	13	10	11	11
Poland	26	21	34	27	24	32	54
Romania	107	107	102	99	129	124	157
Yugoslavia	9	6	4	4	5	4	4

¹ Estimated.

² Crude oil exports are negligible.

³ Including data that cannot be distributed by country of origin.

Eastern Europe: Natural Gas Production and Consumption¹

	1970	1971	1972	1973	1974	1975	1976	1977
Billion ft ³ /d								
Production	3.5	3.9	4.3	4.7	4.8	5.1	5.6	5.7
Bulgaria	Negl.	Negl.	Negl.	Negl.	Negl.	Negl.	Negl.	Negl.
Czechoslovakia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
East Germany	0.1	0.3	0.5	0.7	0.7	0.7	0.8	0.8 ²
Hungary	0.3	0.4	0.4	0.5	0.5	0.5	0.6	0.6
Poland	0.5	0.5	0.5	0.6	0.5	0.6	0.6	0.7
Romania	2.3	2.5	2.6	2.7	2.8	3.1	3.3	3.2
Yugoslavia	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
Consumption	3.8	4.2	4.6	5.2	5.7	6.2	7.1	7.2
Bulgaria	Negl.	Negl.	Negl.	Negl.	Negl.	0.1	0.2	0.3
Czechoslovakia	0.2	0.3	0.3	0.3	0.4	0.5	0.5	0.5
East Germany	0.1	0.3	0.5	0.8	1.0	1.0	1.2	1.2
Hungary	0.4	0.4	0.4	0.5	0.5	0.6	0.8	0.8
Poland	0.6	0.7	0.7	0.7	0.8	0.8	0.9	1.0
Romania	2.3	2.5	2.5	2.7	2.8	3.0	3.3	3.2
Yugoslavia	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2

¹ To convert to m³/d multiply data by 0.028316847.

² Estimated.

Eastern Europe: Natural Gas Trade ¹								
	Million ft ³ /d							
	1970	1971	1972	1973	1974	1975	1976	1977
Imports	259.7	332.9	353.8	486.8	841.0	1,113.7	1,350.4	1,503.3
Bulgaria	29.7	114.7	215.7	290.0 ²
Czechoslovakia	131.3	160.6	189.3	230.8	315.0	369.7	447.9	450.0 ²
East Germany	11.9	8.1	Negl.	71.3	272.1	308.5	323.3	380.0 ²
Hungary	19.4	20.1	19.4	19.4	19.4	78.0	116.9	116.4
Poland	97.1	144.1	145.1	165.3	204.8	242.8	246.6	266.9
Exports	29.6	34.1	32.9	28.3	23.3	23.1	25.3	24.4 ²
Czechoslovakia	8.4	11.9	11.4	9.5	3.5	3.7	5.9	5.0 ²
Romania	19.4	19.4	19.4	18.7	19.8	19.4	19.4	19.4 ²
Yugoslavia	1.8	2.8	2.1	Negl.

¹ To convert to m³/d, multiply by 0.028316847.

² Estimated.

PRC: Oil Production, Consumption, and Exports					
	Thousand b/d				
	1973	1974	1975	1976	1977
Crude Oil Production	1,096	1,315	1,485	1,672	1,806
Crude Oil Consumption	920	1,030	1,300	1,500	1,600
Oil Exports ²	40	110	210	190	205
Japan	19.4	78.1	157.6	121.2	132.0
Philippines	...	2.1	8.3	11.3	10.0
Thailand	0.4	0.8	1.1	5.9	...
Hong Kong	0.8	6.6	13.1	12.3	14.0 ¹
Other countries ³	20	20	30	40	50

¹ Preliminary.

² Exports include both crude oil and petroleum products. Data are rounded to the nearest five thousand barrels.

³ Rough estimate of sales to North Korea, Romania, and Vietnam. Sales to North Korea jumped sharply beginning in 1975 when a pipeline between PRC and North Korea was completed.

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